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Investigating the relationship between callous unemotional traits and emotional processes in adolescent females with conduct problems

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Volume I

Main Research Project and Service Evaluation Project

Vanessa Buckley

Thesis submitted in partial fulfilment of the degree of Doctorate in Clinical Psychology

Institute of Psychiatry, King‘s College London

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Main Research Project

Investigating the Relationship between Callous Unemotional Traits and Emotional Processes in Adolescent Females with Conduct Problems

Supervised by Dr. Troy Tranah

Second Supervisor: Dr. Matt Woolgar

Institute of Psychiatry

May 2013

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Abstract

Background and Aims: There is a paucity of research investigating Callous Unemotional (CU) traits and emotional processing in females with conduct problems. The research that does exist has largely been conducted within a young, community dwelling age group. A number of these studies have suggested that adolescent girls with conduct problems present differently to both boys with conduct problems and girls without conduct problems on measures of CU traits and emotional processing. The current study therefore aimed to investigate the level of CU traits in a sample of adolescent females with conduct problems. In addition, the study aimed to measure a number of emotional processes (i.e. affective empathy, processing of emotional stimuli and emotional dysregulation) and investigate the relationship between these processes and CU traits. Finally, the study sought to clarify whether patterns observed in adolescent males with conduct problems are similar in adolescent females.

Method: Seventy-four participants (mean age= 16.4) were recruited from youth offending teams and local schools into three experimental groups: females with conduct problems (n = 25), males with conduct problems (n = 24) and control females (n = 21). Participants were asked to complete self-report questionnaires about affective empathy, CU traits and emotional dysregulation. They were also asked to complete a computerised lexical decision task.

Results: As predicted, females with conduct problems presented with a different pattern of emotional processing when compared to boys with conduct problems as shown by higher levels of affective empathy and emotional dysregulation but lower levels of CU traits. Whilst CU traits were associated with a deficit in cognitive and affective empathy in boys, CU traits were not associated with a deficit in affective empathy in girls. This relationship also did not differ depending on the level of emotional dysregulation reported by the young person. Finally, boys with conduct problems showed a deficit in attentional facilitation to emotional words whilst girls with conduct problems

did not. When comparing females with conduct problems to control girls, they scored higher on a measure of CU traits and emotional dysregulation but lower on a measure of affective empathy. Affective empathy was not associated with CU traits in either female sample, and there was no difference in the level of attentional facilitation to emotional words between the control girls and conduct problem girls.

Conclusions: Overall, our findings suggest that adolescent females with conduct problems and CU traits present differently to both their male counterparts and to control girls. These results have implications for future research and are potentially clinically relevant**.**

1. Introduction

1.1 Overview

The current study aimed to investigate callous unemotional traits and emotional processing in adolescent females with conduct problems. More specifically, this research aimed to clarify the relationship between callous unemotional traits and affective empathy, emotional dysregulation and the processing of emotional stimuli within a sample of adolescent females with conduct problems. There is a growing literature suggesting that young people with callous unemotional traits represent a subgroup of antisocial young people with specific cognitive, emotional and behavioural correlates that are different from other young people with conduct problems alone (Frick & Dickens, 2006a). However, the research to date has primarily focused on younger male samples. The studies that have included females and examined gender differences in emotional correlates of callous unemotional traits have tended to be in large non-clinical community samples (e.g. Dadds et al., 2009; Blair & Coles, 2000; Kimonis et al., 2006b; Loney, Frick, Clements, Ellis & Kerlin, 2003). This chapter will review the existing literature that has examined callous unemotional traits, conduct problems and emotional processing within an adolescent population. This chapter will also demonstrate that the area of emotional processing and callous unemotional traits in adolescent females with conduct problems has been under researched and that there remain a number of unanswered questions regarding whether models from the male literature are applicable to females as well.

1.2 Conduct Problems

1.2.1 Conduct Problems and Antisocial Behaviour

In the past number of decades, there has been an increase in the amount of research examining the development of conduct problems in children and young people (e.g. Dodge & Petit, 2003; Loeber & Farrington, 2000; Silverthorn, Frick & Reynolds, 2001; Frick & Sheffield Morris, 2004a). Indeed, the presence of

conduct problems in childhood has been reliably shown to be associated with a range of negative outcomes including increased anxiety and depression (Russo & Beidel, 1994; Sourander et al., 2005), educational disruption (Colman et al., 2009; Moffitt, Caspi, Harrington & Milne, 2002), peer rejection (Dodge, Price, Bachorowski, Newman, 1990) and substance misuse (Lynksey & Fergusson, 1995). In addition, there is a well established link in the literature between conduct problems in youth and psychopathology in adulthood (e.g. Fergusson, Horwood, Ridder, 2005; Moffitt et al., 2002). When reviewing the body of research concerned with conduct problems in young people and adolescents, there is some clear variation in how the problem is conceptualised. One approach is from a psychiatric point of view based on examining criteria for a diagnosis of conduct disorder, oppositional defiant disorder and other externalising problems. Another approach is from a criminological point of view which considers the severity and frequency of aggressive or antisocial behaviour shown by the young person. For the purposes of this study, the term "conduct problems" is used to describe a pattern of repetitive antisocial and/or aggressive behaviour which has resulted in contact with the criminal justice system.

1.2.2 Adolescent Conduct Problems and Antisocial Behaviour in the UK

Within the UK, antisocial behaviour presents a significant societal issue and is a central to conduct problems in young people. The Youth Justice Board, which deals with offences committed by those under the age of 18, releases an annual report about antisocial behaviour amongst young people. The latest report which summarised 2010/2011 revealed there were 1,360,451 arrests in the UK in this period of which 210,660 were of people aged 10-17. This means that young people accounted for 15.5 per cent of all arrests in England and Wales, however the same age group accounted for only 10.7 per cent of the population of offending age (Youth Justice Board, 2013). In addition to this, the report claims there were 5,571 penalty notices for disorder (PNDs) given to 16-17 year olds in 2011/12 and 375 Anti Social Behaviour Orders (ASBOs) given to young people in 2011. On average 1,963 young people were in custody in 2011/2012 and the

overall re-offending rate for young people in 2010/2011 was 35.8 per cent (Youth Justice Board, 2013). These figures show that youth offending presents a major issue today and that a significant proportion of the total amount of antisocial behaviour in the UK is carried out by those aged under 18. What is also clear is that a significant number of young people who are convicted will also reoffend.

1.2.3 Antisocial Behaviour in Girls

Although much academic and clinical activity has focused on youth offending in young men, there is increasing recognition of the importance of studying female antisocial behaviour. This can be partially attributed to the increase in the number of females involved in offending in the UK and elsewhere (Chesney-Lind & Paramore 2001; Steffensmeier, Schwartz, Zhong & Ackerman, 2005). Statistics from the Home Office (2003) indicate that the average population of adult females in custody rose by 173% between 1992 and 2002. In comparison, the adult male prison population rose by 50% in the same time period. In terms of adolescents, the number of young female offenders in the UK was 52,101 in 2003/2004. This number increased by roughly 12% to 58,234 in 2004/2005. When considering the underlying reasons for these figures, some theories have suggested that as the female role changes in the 21st century, young women are becoming more emancipated and beginning to act more like their male counterparts (Jackson, 2002). Others attribute this rise to the criminal justice system itself, claiming that females are now being prosecuted for offences which they would not have been prosecuted for in the past (Steffensmeier et al. 2005). In the UK, Youth Justice Board statistics conclude that young males (under 18) accounted for 12.6% of total arrests, whilst young females (under 18) accounted for just 2.8%. This group of adolescent girls convicted within in the youth justice system are on average 15 years old, and mostly white (88%). This is similar to the profile seen in adolescent males. Of those adolescent males who received a substantive outcome in 2011/2012, 80% were white, and 78% were aged between 15 and 17. In terms of offences, adolescent females are most likely to commit a violent offence against a person (39%). However, research suggests that girls under 18

tend to be involved with offending for a shorter period than their male counterparts and commit fewer and less serious offences (Arnull et al, 2005; Smith and McAra, 2004).

One aim of recent research has been to identify the early developmental predictors of conduct problems in adolescents. However, there is a significant gap in the literature around adolescent females which is no doubt influenced by the lower base rate of antisocial behaviour amongst girls to begin with. Very few studies have collected sufficient data on good size samples to conclude with any certainty what the developmental precursors of conduct problems in adolescent females are (Cote, Zoccolillo, Tremblay, Nagin & Vitaro, 2001 Silverthorn & Frick 1999; Zoccolillo, 1993). In addition to this, it has been unclear how best to operationalise conduct problems and antisocial behaviour in girls given the literature suggests that there is a significant difference in the types of antisocial behaviour displayed by girls compared to boys. Indeed by school age, boys have consistently been shown to be more aggressive than girls (e.g. Pepler & Craig, 2005, Kim-Cohen et al. 2005). However, increasing numbers of studies are identifying that adolescent girls may display aggression differently from boys (Crick & Zahn-Waxler, 2003). When compared to girls, boys' externalising behaviour is often more disruptive and overt and more likely to elicit attention (e.g. physical aggression/threats). In contrast, girls are more likely to exhibit indirect or social aggression (e.g. Crick & Grotpeter, 1995; Owens, 1996; Björkqvist, Lagerspetz, Kaukiaianen, 1992b). This involves acts like deliberately harming relationships, social exclusion and rumour spreading. In summary, research has identified clear differences in the nature and presentation of conduct problems in adolescent females which combined with the lower overall rates of antisocial behaviour in this group and difficulties operationalising and defining the concept given clear gender differences means that there remains many unanswered questions around the development of conduct problems in adolescent females.

1.2.4 Risk Factors for Antisocial Behaviour

The search to identify precursors to conduct problems spans the fields of criminology, sociology and psychology. Within the psychological literature, both innate (e.g. genetic, temperamental, personality) and environmental (parental psychopathology, pregnancy complications, socio-economic status) variables have emerged as potential risk factors. A number of models have sought to integrate these risk factors into a cohesive model of the development of antisocial behaviour in young people. For example, Dodge & Pettit (2003) suggest a biopsychosocial model through which biological dispositions and sociocultural contexts place certain children at risk of developing conduct problems. In this model, biological risk factors like temperament are incremented and mediated by experiences and interactions with parents, peers, and social institutions. In contrast, Stouthamer-Loeber, Loeber, Wei, Farrington & Wikström (2002) amongst others suggest that it is in fact the number of risk factors that a child is exposed to rather than which risk factors that is important (e.g. an additive model).

Farrington's Integrated Cognitive Antisocial Potential theory was developed from the Cambridge Study in Delinquent Development, a prospective longitudinal survey of 411 males aged from 8 to 48 in the London area. (Farrington, 1995, 2003). This study identified risk factors for future offending and found that interestingly, risk factors changed at different developmental stages. For example, having a difficult temperament at age 3-4 predicted future offending however at age 8-10 it was the boys who were most impulsive on psychomotor tasks that tended to become offenders in later life. He described a continuum of "Antisocial Potential" on which all the males could be placed which may translate into antisocial behaviour with the presence of certain cognitive processes. The research concluded that long term antisocial potential depends on impulsivity, life events and socialisation processes whilst short term antisocial potential depends largely on motivation and situational factors. Later studies in line with this (Loeber & Farrington, 2000) demonstrated that the risk of developing antisocial behaviour is a function of the number of these risk factors present. Overall, Farrington's work highlights the importance of taking

developmental stage into account when considering risk factors for future conduct problems.

Although several studies have attempted to identify and isolate risk factors for antisocial behaviour in childhood, perhaps the largest was the Dunedin Multidisciplinary Health and Development Study; a 30 year long longitudinal study following 1,000 new born babies in New Zealand. Using a variety of methodology (e.g. self-report, parent report, official records) this study aimed to examine early childhood predictors and investigate their relationship to antisocial behaviour later in life. Risk factors that were identified included "uncontrolled temperament" and delayed motor development at age 3, low intellectual ability and reading difficulties (Moffitt, Silva, Lynam, & Henry. 1994; Moffitt, Caspi, Dickson, Silva & Stanton 1996). There were also a number of more systemic risk factors identified including mothers with poor mental health and mothers who were observed to be neglectful or harsh (Moffitt & Caspi, 2001). In summary, a number of childhood predictors have been identified as being related to the later development of conduct problems. However, it is important to note that the process of identifying risk factors for antisocial behaviour is inevitably complicated by unavoidable heterogeneity in the form, severity and frequency of that behaviour itself. In other words, it is difficult to identify clear predictors of behaviour that is so wide ranging in presentation.

1.2.5 Gender Differences in Risk Factors for Antisocial Behaviour

Although several studies mentioned above have found similar risk factors for girls and boys, a number have demonstrated interactions of risk factors and gender; in other words there may be some differences in how risk factors impact on girls and boys. For example, research has shown that a lack of maternal affection predicted increased levels of physical aggression and disruptive behaviour in kindergarten aged boys however the same behaviour actually predicted decreased problem behaviours in girls (McFadyen-Ketchum, Bate, Dodge & Petit, 1996). When considering the family system, Davies & Windle (1997) also found that family discord explained more of the variance in girls'

conduct problems than boys. In a more recent large longitudinal study, researchers found that gender differences in developmental trajectories for conduct problems varied according to age, in line with previous research (Lahey, VanHulle, Waldman, Rodgers, D'Onforio et al. 2006). This is also impacted by the fact that conduct problems decline more in girls than boys as they grow older (Keenan & Shaw, 1997). Interestingly a large review of existing studies found adolescent girls with conduct problems to be more sensitive to disruptions in their social environment, particularly at home (Loeber & Stouthamer-Loeber 1986). In line with this, Griffin, Botvin, Lawernce, Scheier, Diaz and Miller (2000) found that adolescent girls responded better to positive parenting (in terms of a reduction in antisocial behaviour) than boys. In addition to this, research has shown that females with conduct problems more often come from conflictual, violent homes than males (Lewis, Yeager, Cobham-Portorreal & Klein 1991) and experience more family adversity than boys (Maughan, Rowe, Messer, Goodman & Meltzer, 2004). In summary, although there are a number of shared risk factors that predict conduct problems in both boys and girls, there are also a number of factors, particularly relating to the family environment and parenting quality that impact differently on the development of conduct problems in boys and girls.

1.2.6 Developmental Perspective

In an extension of the work examining developmental risk factors for antisocial behaviour, Moffitt (1993) suggested a developmental taxonomy that distinguishes between two separate pathways along which conduct problems may develop. This creates a distinction between children who show severe antisocial behaviour problems in childhood compared with those whose problem behaviour begins in puberty (Frick, 2004a). Those in the childhood onset group begin to show mild externalising problems in primary school and this behaviour increases in frequency and severity throughout their childhood and adolescence (Lahey & Loeber, 1994). However, the adolescent-onset group begin to show antisocial behaviour in adolescence without significant difficulties before this (Hinshaw, Lahey, & Hart, 1993).

Research has shown that those young people in the childhood-onset group are more likely to show a severe pattern of violent behaviour into adulthood (Moffitt, 1993; Hinshaw et al. 1993; Frick & Loney, 1999b). In addition, these children tend to share similar environmental risk factors such as unstable families with a history of externalising disorders (Frick, 1994), parents with harsher parenting strategies (Barker & Maughan, 2009) and as well as similar innate risk factors such as impulsivity (Silverthorn et al., 2001), low cognitive ability and motor hyperactivity (Lynam, 1996). When examining correlates of the adolescent-onset trajectory, research has identified association with delinquent peers (Moffit et al., 2002) and higher levels of "rebelliousness" (Dandreaux & Frick, 2009). Using this and other evidence, Moffitt (2003) suggested that children in the childhood-onset trajectory group develop antisocial behaviour through a transactional process involving a child with specific vulnerabilties such as impulsivity, low IQ, and temperamental difficulties who is exposed to a dysfunctional home environment characterised by poor parental supervision and inadequate parenting and schooling.

It has been suggested that whilst antisocial behaviour in boys develops both across childhood onset and adolescent onset trajectories, adolescent females are much more likely to follow the adolescent-onset pathway (Silverthorn et al., 2001). In an attempt to understand and better operationalise the development of antisocial behaviour in girls, a number of theories have been proposed. However, it must be noted that these theories are less well researched than those that attempt to describe the same process in boys. One such theory devised by Moffit & Caspi (2001) suggest that the two-pathway model of externalising pathways proposed in boys also is true for girls simply suggesting that the adolescent onset pathway is more typical for girls. This research concludes that the problem behaviour shown by girls in adolescence is not likely to result in long lasting problems with antisocial behaviour. However, this theory fails to accurately describe the girls that do go on to have significant difficulties post adolescence. Although it is clear that there are likely to be different patterns of offending in girls and boys, it is also important to recognise that a significant amount of research has in fact found that risk factors are broadly similar across gender as discussed earlier (e.g. Hubbard & Pratt, 2002; Cauffman et al., 2004).

Interestingly, Keened and Shaw (1997) suggest that the reason for the delayed development of problem behaviours in girls is related to a number of social, cognitive and biological strengths that girls have in childhood, for example better language development (Morrisset, Barnard & Booth, 1995) and more prosocial responses (Zahn-Waxler, Radke-Yarrow, Wagner & Chapman, 1992) which enhances their resilience. A third theory from Silverthorn and Frick suggests that whilst most girls do not display problem behaviours until adolescence (the delayed onset pathway) the risk factors implicated in their conduct problems may actually be present in childhood and may be similar to those suggested in models of the male "early onset" pathway. The difference is that the authors propose that the manifestation of these behaviours occurs later in girls as a result of a rebellion against authority figures (Silverthorn & Frick, 1999). Interestingly, a number of authors have proposed a different approach which claims that risk factors for antisocial behaviour and indeed the behaviour itself can be present in very young girls (early onset) but that there has been a failure to correctly define and identify it (e.g. Björkqvist, Lagerspetz & Kaukiaianen, 1992b; Rudolph, 2002). In other words, these authors claim that the inherent differences in the presentation of conduct problems in girls has made it difficult to make comparisons to boys who have been shown to be significantly more physically aggressive in childhood. Research along this line has also suggested that the gender differences in aggression in general, and the prevalence rates of conduct disorder (CD) more specifically, may reflect measurement artefact because the diagnostic criteria and methods of assessing conduct problems can lead to the under identification of aggressive behaviour in girls (e.g. Keenan, Coyne & Lahey, 2008; Zoccolillo 1993; Crick & Zahn-Waxler, 2003). Despite an increasingly large volume of work, it is clear that there is no one definitively agreed theory to adequately describe the development of conduct problems in adolescent girls.

Despite these added complications, what is clear from the research is that young people who show particularly chronic and severe patterns of antisocial behaviour are likely to represent a subgroup that may show distinct casual processes leading to their behaviour. Therefore, a number of studies have tried

to define how this subgroup differs in their risk factors and in turn have aimed to identify a potentially distinct pathway to the development of conduct problems in these particular adolescents (e.g., Frick & Ellis, 1999; Viding, Blair, Moffitt & Plomin 2005; Frick, 2004). This approach clearly has implications for early intervention for antisocial behaviour. By identifying risk factors specific to those adolescents who develop particularly severe conduct problems, it may be possible to intervene with these factors in childhood. The concept of different causal processes defining a subgroup of adolescents with more severe conduct problems is mirrored in the adult literature. When considering an adult population, the subgroup of individuals who display the most severe and violent behaviour have been shown to have distinct causal processes leading to their behaviour (Patrick, 2007). In addition, this subgroup can be identified by the presence of increased levels of psychopathy (Hemphill, 2007). Given the association between psychopathy and antisocial behaviour in adults is well established, research has attempted to identify the developmental precursors to psychopathy in childhood and adolescence in order to investigate whether the presence of these factors may designate a subgroup of young people with more severe and enduring conduct problems.

1.3 Psychopathy

1.3.1 Psychopathy definition

Psychopathy is defined as a constellation of affective, interpersonal and behavioural traits characterised by a lack of guilt and empathy, egocentricity, impulsivity and the use of others for one's own gain (e.g. Hare, Hart, & Harpur, 1991; Hare, 1999, Blair, Budhani, Colledge & Scott, 2005; Neumann, Hare, & Newman, 2007; Lynman, Whiteside, & Jones, 1999) . As mentioned previously, within an adult population, the presence of psychopathic traits has been shown to be associated with a more severe and violent pattern of offending (Hempill, 2007; Serin, 1993). Salekin and colleagues demonstrated that in a sample of adult offenders, the construct of psychopathy predicted increased levels of violence and antisocial behaviour (Salekin, Rogers & Sewell, 1996). In a meta-analysis of 21 studies conducted by Edens, Campbell & Weir (2007) traits of

psychopathy were associated with higher rates of general or violent recidivism (r = .24 and r = .25) in a sample of adult offenders.

1.3.2 Gender Differences in Psychopathy

The evidence base suggests that there may be gender differences in the core characteristics of psychopathy in adulthood (e.g. Forouzan & Cooke, 2005). This study found differences between women and men in expressions of psychopathic behaviour, interpersonal characteristics and motivation underpinning psychopathic behaviour. The research proposes that there are inherent gender differences in the behavioural manifestations of psychopathy for example men with psychopathic traits are more likely to act impulsively whilst females are more likely to self-harm and manipulate. In addition, research has found that overall, female offenders displayed lower levels of psychopathy when compared to male offenders (Bolt, Hare, Vitale & Newman, 2004). Despite this, the relationship between antisocial behaviour and psychopathy remains the same in women as in men; higher levels of psychopathy are associated with more violent serious criminal behaviour (Louth, Williamson, Alpert, Pouget & Hare, 1998).

1.3.3 Aspects of Psychopathy

Research has separated the unitary concept of psychopathy into at least three independent factors:

(1) Interpersonal style characterised by n+arcissism, deceitfulness and manipulative behaviour.

(2) Behavioural style characterised by impulsivity, proneness to boredom and poor planning.

(3) An “affective factor” (Cooke, Michie & Hart, 2006; Hare, 1993) characterised by CU traits. These are characterised as being prominent in most conceptualisations of psychopathy in adults (Hare, 1993).

There is significant evidence that the adult presentation of psychopathy has its roots in childhood (Loeber, 1982). Of course, this is a sensitive and potentially

inflammatory line to follow given the implications of labelling children or young people as "psychopaths" of "psychopathic". This issue is further complicated by the need to view any precursors to psychopathy within a clear developmental framework. In other words, it cannot be concluded that the presence of an isolated behaviour at one age has the same implications at another. The response of an 8 year old to another's distress will be qualitatively different to that a 17 year old. Furthermore, the presence of psychopathy in adulthood cannot be definitively said to relate to isolated developmental factors than can also be present in normal development (e.g. harsh parenting environment). Despite these reservations, it is interesting to note that there is some evidence to suggest that a three factor model of psychopathy similar to that found in adults is also valid in adolescents and children. Vitacco, Rogers & Neumann (2003) conducted a factor analysis that revealed three dimensions of psychopathy in young people similar to those identified in adult samples. These factors can be labelled as callous-unemotional (CU), narcissistic, and impulsive.

1.3.4 Callous Unemotional Traits

Although all three dimensions emerge in youths, there is evidence to suggest that the CU dimension is important for distinguishing the severity of conduct problems within subgroups of antisocial youth. Callous Unemotional traits can be defined as a lack of empathy for others, a lack of guilt and the callous use of others for one's own gain (Frick & White, 2008; Kimonis & Frick, 2010). The presence of these traits has been shown to designate a particular subgroup of children and adolescents who display more severe and aggressive antisocial behaviour than those youths without CU traits (e,g, Dadds, Whiting & Hawes, 2006a; Loeber et al. 2005) In a review of 24 studies published by Frick and Dickens in 2006, the presence of psychopathic traits or CU traits was associated with more severe and enduring conduct problems. This relationship has been found in both childhood (Frick, Cornell, Barry, Bodin & Dane, 2003a) and adolescent samples (Vincent, Vitacco, Grisso & Corrado, 2003) using self-report (Kruh, Frick & Clements, 2005), teacher rated (Frick et al., 2003) and clinician rated measures (Vincent et al. 2003). Young people with high levels of CU traits also engage in both reactive (responding to a real or perceived threat

immediately) and proactive aggression (premeditated aggression, involving planning). In fact, evidence from a study involving older adolescents (aged-15-21) suggested that the presence of psychopathic features is associated with more frequent and varied violent acts and more instrumental aggression (Flight & Forth, 2007). In line with this, in educational settings, children with high levels of CU traits have been associated with more direct bullying (Viding, Simmonds, Petrides & Frederickson, 2009). In contrast, most young people displaying antisocial behaviour without the presence of CU traits only show reactive aggression (Caputo, Frick & Brodsky, 1999).

A further finding has been that CU traits have predictive value and can identify young people who will engage in higher levels of antisocial behaviour in later life (Frick et al. 2003). Pardini and Loeber (2008) showed that in a community based sample of 506 male adolescents between 14-18 years of age those with the highest levels of CU traits were most likely to show the highest levels of antisocial personality traits at 26. In addition, there have been a number of other studies that have evaluated the impact of CU traits on treatment outcome. Gretton, Hare and Catchpole (2004) conducted a 10 year prospective study in a sample of adjucated male adolescents and found that the presence of CU traits predicted violent re-offending and a shorter time span until re-offending. To add to this, there is a significant body of research which suggests that CU traits remain relatively stable from late childhood to early adolescence and from adolescence to adulthood when assessed by both self-report (Andershed, Gustafson, Kerr, & statin, 2010; Munoz & Frick, 2007) and parent report (Frick et al., 2003b). Even over a long follow up period (9 years), Obradovic´, Pardini, Long & Loeber (2007) reported high rates of stability for parent and teacher ratings of CU traits in a sample of boys aged from 8 to 16. It is therefore clear that CU traits are potentially important in defining a subgroup of young people with more severe and enduring patterns of conduct problems.

1.3.5 CU Traits in Girls

The vast majority of papers published on CU traits in adolescents have been based on male samples. This is not surprisingly given the higher rates of

antisocial behaviour and externalising behaviour problems in boys. However, despite this, there has been a steady growth in studies examining the correlates to callous unemotional traits in females mirroring the increase overall in the rates of adolescent females offending. The existing evidence regarding CU traits and girls suggest that it is an important concept for understanding problem behaviours. For example, Frick et al. (2003) found that in a community sample of U.S girls (mean age 12) with no conduct problems, the girls who scored highly on measures of CU traits were more likely to be displaying delinquent behaviour one year later. In a sample of younger Australian girls aged between 4 and 9, research has again shown that CU traits are predictive of disruptive behaviour after 1 year (Dadds, Fraser, Frost & Hawes, 2005). More recently, Kroneman, Hipwell, Loeber, Koot and Pardini (2011) investigated the moderating effect of CU traits on the relationship between externalising behaviour and contextual risk factors in a large community sample of 7-8 year old girls over five years. The results suggested that externalising behaviours decreased towards the end of childhood and increased as girls entered adolescence. However, CU traits were associated with particularly high levels of externalising behaviour throughout both childhood and adolescence in this sample.

1.3.6 Correlates of CU Traits

As well as designating this subgroup of more severe and aggressive behaviour, young people with callous unemotional traits and conduct problems are more likely to show a range of specific cognitive and emotional features. For example, research has identified that a preference for thrill seeking activities is more common in children with high CU traits (Frick & Ellis, 1999). Frick et al. (2003) tested a sample of 98 non-referred girls and boys with an average age of 12 and found that children with conduct problems (irrespective of CU traits) displayed significant difficulties with behavioural and emotional regulation. Those children that were high on CU traits and conduct problems showed the highest level of behavioural dysregulation. Interestingly, children with high CU traits and high conduct problems showed a preference for novel and dangerous activities and a decreased sensitivity for punishment cues. The study also

showed that children with high CU traits without any conduct problems also show this profile of low behavioural inhibition, particularly in the reward dominant response style. In a separate study, Pardini and colleagues (2006) studied 169 incarcerated male and female adolescent offenders and found that higher CU traits were related to increased expectations and values associated with the positive consequences of aggression and deviant behaviour (Pardini, Obradovic & Loeber, 2006b). This relationship remained despite controlling for past abuse histories, intellectual abilities and impulsivity. Support for these ideas has also been found biologically, with boys high on measures of CU traits and conduct problems show lower resting levels of cortisol than control boys or boys with conduct problems alone (Loney, Butler, Lima, Counts & Eckel, 2006). This suggests that these young people may be less reactive to stressful situations. This line of enquiry has clear implications for intervention (Blair, 2005; Woodworth & Waschbusch, 2007; White & Frick, 2010). By isolating the specific cognitive and emotional deficits seen in young people presenting with antisocial behaviour and CU traits, it may be possible to target more intervention efforts aimed at reducing adolescent offending behaviour (Linick et al. 2012).

1.4 Emotional Processing

1.4.1 Emotional processing deficits

At the core of the construct of CU traits is a diminished affective experience (Blair et al. 2005). It is not surprising then that young people with CU traits also exhibit abnormalities in the way they process emotional information. The literature base has long emphasised the role of emotional processing in the development and presentation of psychopathy in adults. Cleckley (1982) proposed that psychopathy is a result of early socialisation characterised by abnormal affective experiences that do not allow the individual to develop appropriate morality. Other theoretical models (e.g. Lykken, 1995) suggest emotional processing in psychopathy is characterised by a specific lack of fearful inhibitions. Research has supported these theories by using psychophysiological methodology to show that psychopathic traits are

associated with diminished reactivity to negative and aversive stimuli (Patrick, 1994).

There have been a number of studies investigating the relationship between the presence of CU traits in young people and emotional processing. Research has consistently demonstrated that young people with CU traits display a deficit in emotional processing similar to their adult counterparts and that more specifically these young people show deficits in the processing of negative emotions like fear, sadness, and anger (Marsh & Blair, 2008). Dadds et al. (2005) demonstrated that in two separate samples of community dwelling boys aged on average between 12-13 years of age, there was a consistent relationship between levels of CU traits and poor fear recognition in facial expressions. Kimonis et al. (2006a) used emotional pictures in a dot probe task to measure emotional responding in a sample of 50 community based girls and boys with a mean age of 9. The aim was to investigate whether traits of psychopathy (including CU traits) were associated with a deficit in processing negative emotional stimuli and more specifically whether this deficit generalised across both distressing and threatening stimuli. Interestingly, in children who scored highly on measures of aggressive behaviour, there was a significant relationship between traits of psychopathy and a deficit in processing emotional stimuli however children with high levels aggression but who scored low of measures of traits of psychopathy actually showed an enhanced response to negative stimuli which was in line with previous research in adjucated young people (e.g. Loney et al. 2003). Similar results have been found using a variety of negative stimuli including a number of different emotional facial expressions (Marsh & Blair, 2008) and vocal tones (Stevens, Charman & Blair, 2001; Blair et al. 2005). In summary, a number of studies have shown that young people with CU traits demonstrate abnormalities in how they process emotional information. Interestingly, this deficit has been shown to only be present with negative emotional content.

1.4.2 Lexical Decision Task

This deficit in emotional processing has previous been studied in adult population using the Lexical Decision Task (Williamson, Harpur & Hare, 1991). In this task, participants are asked to identify letter strings presented to them on a computer screen as either words or non-words. The words are classified according to their emotional valence

1) Positive words: E.g. play, cake, fun
2) Negative words: loss, flea, wrong
3) Neutral words: item, into, car

The non-words were created by changing one of the vowels of the target words (e.g. play- pluy). This experiment is based on the theory that the presence of emotional information immediately captures attention which influences attention and information processing (Calvo & Lang, 2004). Each participant's reaction time when classifying the string as a word or non-word is measured. This is viewed as a measured of the implicit allocation of attention to the emotional stimulus (Williamson et al. 1991). In other words, the time it takes to classify a word is a marker of how vigilant each participant is at attending to emotional stimuli (Rusting, 1998). Williamson et al (1991) used this task in a sample of adult inmates and reported that those participants who scored highly on measures of psychopathy showed no facilitation for either positive or negative words (i.e. there was no difference in the time it took for them to classify emotional words compared to non-emotional words). Conversely, the group scoring low on measures of psychopathy showed normal facilitation to positive and negative words (i.e. responded quicker to words with emotional content). Interestingly, the "psychopath" subgroup of inmates actually displayed the slowest reaction time for negative words. This is in line with other research studying emotional processing detailed above (e.g. Dadds et al., 2005; Stevens et al., 2001). Interestingly, when inmates rated whether they considered each word positive or negative prior to completing the task, there was no difference in their ratings regardless of whether the participants scored high or low on measures of psychopathy. This suggests that the process at play during this task

is automatic as opposed to an effortful appraisal. Given that the literature suggests that those high in traits of psychopathy can mimic and reproduce feelings in themselves and others, it is particularly relevant to utilise a paradigm that accesses automatic emotional processing when studying psychopathy (Cleckley, 1982).

1.4.3 Processing negative stimuli

When considering the developmental precursors to psychopathy, researchers (e.g. Frick et al., 2003; Loney et al., 2003) have adapted this protocol to be suitable for young people. Loney et al.(2003) found evidence of the same deficit in processing negative words in a sample of 60 adolescent boys with a history offending. In addition, Frick et al.(2003) reported a relationship between low emotional responsivity to negative emotional words and CU traits in a sample of boys and girls with an average of 12. This relationship was not found for the entire sample, and only held true for younger children. Interestingly, across all these different studies and different stimuli, there is consistent evidence that young people with CU traits do not have any deficits in how they process positive stimuli, only negative stimuli (Kimonis et al., 2006a; Loney et al., 2003). This effect is even more specific to fear and distress in others (Blair & Coles, 2000). Interestingly, Pardini, Lochman and Frick (2003) found in a sample of 169 adjucated males and females that CU traits were associated with a decrease in personal distress in stressful situations. In other words, this emotional processing deficit may help to buffer the amount of personal distress experienced by young people during negative events. Of note, research has suggested that the experience of personal distress is crucial to the development of empathy in children (Davis & Franzoi, 1991). In other words, in order for children to learn to feel empathy for others in distress, they must first experience this distress themselves (e.g. Kochanska, 1995). Therefore if children with CU traits are somehow buffered from experiencing this distress, it follows that they may show abnormalities in the development of empathy. This poverty of empathic concern to others has been supported by studies that show a negative association between CU traits and empathy (Munoz, Qualter & Padgett, 2010). In summary, this subgroup of young people appears to be

characterised by abnormalities in how they process fear and distress in others which may contribute to a deficit in empathy.

1.4.4 Empathy

When considering the expression of empathic concern in young people high on CU traits, it is important to note the difference between the ability to feel emotion for other people (i.e., affective empathy) and the ability to recognise the emotions of others (i.e., cognitive empathy). Research has identified a number of consistent associations in empathy. Firstly, females score higher than males on self-report measures of empathy and this difference has been shown to be greater for affective empathy rather than cognitive empathy (Joliffe & Farrington, 2006; Albiero, Matricardi, Speltri & Toso, 2009). This has been hypothesised to be related to the fact that females are socialised through childhood to be more aware of and respond to the emotions of others when compared than males. It may also be that females are more able to access and express their emotional repertoires (Lennon & Eisenberg, 1987). Pardini et al. (2003) used self-report and archival data to investigate the relationship between social cognitive process and CU traits and found that CU traits were strongly associated with deficits in cognitive and emotional empathy. However, other studies have suggested that in fact, young people with CU traits tend to show more deficits in affective empathy than in cognitive empathy (Anastassiou-Hadjicharalambous & Warder, 2008). In an interesting study by Jones et al. (2010) comparing boys with CU traits and boys with ASD, a double dissociation between cognitive and emotional empathy was identified. It was found that whilst boys with ASD showed deficits in understanding the emotions of others (cognitive empathy), boys with CU traits showed specific deficits in affective empathy only. Dadds, El Masry, Wimalaweera, and Guastella (2008) found that CU traits were related to a deficit in both types of empathy in young community dwelling boys, however in older boys, the deficit in cognitive empathy reduces. This is noteworthy as it implies to some degree that these young boys may "learn" to express an understanding of feelings in others (cognitive empathy) without necessarily developing the "felt sense" (empathy). However, an even more noteworthy finding of this study was that although the

negative relationship between CU traits and affective empathy was supported in boys, it was not in girls. Girls showed a relationship between CU traits and deficits in cognitive empathy at all ages and it did not appear to improve with age as in their male counterparts. However, perhaps even more interesting was the finding that there was no clear pattern between affective empathy and CU traits in girls at any age. This is an important point to stress, as a lack of affective empathy is considered to be a central part of the definition of psychopathy yet in this study, there was no relationship found between a lack of affective empathy and higher CU traits. These are important factors to consider as it is possible that deficits in emotional processing and reactivity discussed earlier maybe contribute to causal process in the developmental of antisocial behaviour by affecting the development of emotional regulation and in turn the development of empathy (Frick & Morris, 2004).

1.4.5 Gender Differences in Empathy

When considering the finding that the relationship between empathy and CU traits may be different in females when compared to males, it is important to consider past research which has typically shown that females with conduct problems display more empathy (e.g., Gault and Sabini 2000; Keenan and Hipwell 2005) when compared to males with conduct problems. Recent work by Stickle, Marini & Thomas (2012) showed that when examining gender differences in a sample of 150 adjucated adolescents, females showed significantly higher levels of empathy when compared to boys. However, interestingly these girls also showed higher levels of emotional distress including negative affect and distress about social provocations. In other words, the female participants were characterised by a wider range of emotionality than the male participants. Although overall, males reported higher levels of CU traits, this study found that when examining the female participants with the most severe conduct problems, their levels of CU traits were significantly higher than equally aggressive boys or indeed any other subgroup of boys or girls within the study. Given that this subsample of females was characterised by greater emotional dysregulation, emotional distress and severe conduct problems, it may be possible that the high levels of CU traits are a more general

indicator of extreme overall disturbance amongst these girls. These results present a number of contradictions to the predominantly male evidence base. For example, this study found a relationship between higher CU traits and greater empathy which is contrary to what would be expected based on evidence from all male samples. The authors suggest that this pattern of greater emotionality in the female sample is in fact a marker of emotional dysregulation and difficulties in managing extremes of emotions. Overall, the findings suggest that although CU traits are indeed associated with more severe conduct problems as would be expected in adjucated adolescent females, the girls with the most severe conduct problems were also characterised by indicators of increased psychological distress and difficulties regulating emotions when compared to their male counterparts.

1.4.6 Emotional Regulation

There are a number of working definitions of emotional regulation in the literature. It can be defined as

"the extrinsic and intrinsic processes responsible for monitoring, evaluating and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals."

Thompson (1994, pp. 27 –28)

Similarly, it could be described as attentional, cognitive, or behavioural attempts to manage internal states or the external expression of emotion (Eisenberg, Spinrad, & Smith, 2004). Regardless of specific definitions the concept of emotional regulation has long been central in theories seeking to understand the development of conduct problems in childhood and adolescence (Bradley, 2000; Steinberg & Avenevoli, 2000). Emotional self- regulation is the way in which we control and manage emotions, including both positive and negative emotions and containing neurophysiological, cognitive, and social processes (Trentacosta & Shaw, 2009).

Emotional regulation becomes a key area to study with the onset of puberty and adolescence. This transition period is characterised by physical, psychological, and social changes that lead the young person to experience new and challenging emotional experiences. Research has indeed shown that adolescents experience emotions more intensely than children and adults (Larson, Csikszentmihalyi & Graef, 1980). This period of development is also characterised by the emergence of many forms of psychopathology in addition to a number of physiological changes including neural and hormonal development (e.g. the continuing development of the frontal lobes) and related changes in cognitive systems (Spear, 2000). There is no doubt that externalising problems are characterised by behavioural dysregulation however there has been less research into the role of emotional dysregulation as a contributory factor (Bradley, 2000). The studies that have been completed suggest a link between emotional dysregulation and conduct problems. Research by Lotze, Ravindran and Myers (2010) found that in a sample of 50 girls and boys aged between 6-12 poor emotional regulation predicted children's externalizing behaviours. This result was found in both self and parent rated measures.

1.4.7 Gender Differences in Emotional Regulation

Much research has identified a negative relationship between emotional dysregulation and CU traits in adolescent males, i.e. higher CU traits are associated with lower emotional dysregulation. However, results such as those from the study by Stickle et al. (2012) suggest that there may be a different relationship between emotional dysregulation, empathy and CU traits in adolescent females with conduct problems. There has been an assumption in the literature that models of CU traits in adolescents would generalise to both girls and boys who display conduct problems (Moffitt & Caspi, 2001). However there is very little direct research testing this assumption and the data that does exist questions the validity of these models to girls (Silverthorn & Frick, 1999). It is possible that CU traits may manifest differently in adolescent girls. Research suggests that CU traits are inherently more incongruent for girls (Keenan & Shaw, 1997). This is attributed to the fact that CU traits are less of a deviation from traditional gender roles in boys compared to girls. That is, being

"masculine" in western culture is often associated with showing less emotion and empathic concern than women (Verona & Vitale, 2005). Therefore, the development of CU traits in girls would represent a greater deviance from the mean than in boys. In a study by Cruise and colleagues in 2003, staff working with adjucated youths were asked to rate them on traits of psychopathy. Interestingly, they tended to associate the girls more with the interpersonal aspects of psychopathy (e.g. superficial charm) whilst they associated the boys more with the antisocial features (e.g. aggression) (Cruise, Colwell, Lyons, & Baker, 2003). Javdani, Sadeh and Verona (2001) found that callous unemotional traits are in fact a protective factor from suicide attempts in girls but not in boys given that CU traits represent low levels of emotionality which otherwise predispose females to suicidal attempts. However, there was no significant difference in the level of CU traits reported between girls and boys in this sample. The authors hypothesise that in fact, CU traits in girls may resemble CU traits in boys, however may be an etiologically distinct construct.

1.5 Rationale

In summary, although there is a wealth of literature examining CU traits and emotional correlates in boys there has been a distinct lack of research examining these relationships in girls, particularly in clinical samples of girls who display conduct problems. However, some recent research (e.g. Dadds et al., 2009; Stickle et al., 2012) has raised the question of whether adolescent females show the same pattern of deficits as their male counterparts and whether there are in fact gender differences in the processing of emotional stimuli, empathy and emotional dysregulation. This lack of research may in part be attributed to the lower rate of offending and antisocial behaviour in girls overall. However, in recent years, the number of adolescent females coming into contact with the criminal justice system has increased dramatically. Some research has questioned whether models of the developmental of CU traits are valid in adolescent girls given the differences in emotional processing found between adult men and adult women with traits of psychopathy. This study aims to investigate the relationship between CU traits and empathy, emotional processing and emotional dysregulation in sample of girls with conduct

problems. The study also aims to compare these results to a sample of adolescent boys with conduct problems as well as an age and demographic matched sample of control girls.

Of particular interest is a recent finding that girls with high levels of psychopathic traits do not show a significant deficit in affective empathy (Dadds et al., 2009). This is theoretically important given the central role of empathy in the definition of CU traits. A number of potential reasons have been put forward to account for this finding. Research has found that females with the most severe conduct problems show higher levels of empathy when compared to their male peers. However, these females also report CU traits. This seeming contradiction between the presence of CU traits and high empathy may be related to the greater level of emotionality in adolescent females. Given the higher base rate of emotional dysregulation in females compared to males it may be possible that the presence of poor emotional regulation could impact on the relationship between CU traits and affective empathy, leading to a different pattern to that found in boys.

In other words, girls with conduct problems are more emotionally dysregulated than boys with conduct problems who are typically more behaviourally dysregulated. Therefore, it could be said that boys are better able to monitor and manage their emotions. In this model, the presence of CU traits represents low levels of emotionality, is more common in boys and may indicate a clear block to the development of empathy, whilst their absence allows empathy to develop normally. However, it may be that in girls, the presence of CU traits is not necessarily associated with low levels of emotional dysregulation particularly in girls with conduct disorder (Stickle et al., 2012). Therefore, those girls with low levels of emotional dysregulation may be most similar to their male counterparts in terms of the development of empathy, however those with high levels of emotionality have more difficulty monitoring and managing emotions and therefore may be characterised by a greater range of emotions leading to empathy and CU traits developing in a less predictable manner and in a different way to adolescent males.

Aside from affective empathy, a large body of research has suggested that boys with CU traits exhibit a more general deficit in processing emotional stimuli. This effect has been reported using a number of different experimental paradigms and emotional stimuli. One such protocol involves the emotional lexical decision task which gives an automatic non-effortful measure of emotional processing by asking young people to rate positive and negative words. This method has shown that boys with CU traits show a deficit specific to negative words (Frick et al., 2003; Loney et al., 2003). However, research utilising this methodology has focused on male samples (Loney et al., 2003) or on mixed samples of community based younger children (Frick et al., 2003). This study aims to extend this literature by recruiting a sample of adolescent females with a history of antisocial behaviour to investigate whether they show a deficit in emotional processing similar to their male counterparts.

1.6 Hypotheses

1.6.1 Primary Hypotheses

1. Girls with conduct problems will show a different pattern of emotional processing when compared to boys with conduct problems as defined by:

   a) Higher levels of affective empathy
   b) Higher levels of emotional dysregulation
   c) Lower levels of CU traits

2. There will be gender differences in the relationship between CU traits and empathy:

   a) Higher CU traits will be associated with both lower affective and cognitive empathy in boys
   b) Higher CU traits will be associated with lower cognitive empathy but not with lower affective empathy in girls

3. The relationship between affective empathy and CU traits in girls will be moderated by emotional dysregulation.

4. Girls with conduct problems and CU traits will show normal emotional facilitation to emotional words on the lexical decision task whilst boys with conduct problems and CU traits will not.

1.6.2. Secondary Hypotheses

1. Girls with conduct problems will show a different pattern of emotional processing when compared to control girls as defined by:

   a) Higher levels of CU traits
   b) Higher levels of emotional dysregulation
   c) Lower levels of affective empathy

2. CU traits will be associated with a deficit in both affective and cognitive empathy in females

3. There will be no difference in facilitation to emotional words between girls with conduct disorder and control girls. As this paradigm has not been used within this sample previously, this hypothesis is based on previous research conducted within adult samples of females which have found no difference on measures of attentional facilitation to emotional words using the lexical decision task between females with a history of offending and control females.

2. Method

This chapter will describe the overall methodology of the study. The study design will be discussed along with the statistical power analysis which was used to calculate the number of participants necessary. The details of the recruitment process and sample will be outlined, along with a description of all measures used. In addition ethical consent and issues will be discussed.

2.1 Design

This study employed a cross-sectional between groups design using two clinical samples of adolescents with conduct problems; one male sample and one female sample, and a control group of community dwelling adolescent girls with no conduct problems. The independent variables were group status (clinical v. control) and gender (male v. female). The effect of these variables on the level of self-reported callous unemotional traits, emotional dysregulation, empathy and emotional processing of negative stimuli was examined. Verbal IQ was also ascertained to rule out a potentially confounding effect of verbal ability.

2.2 Participants

In total, 74 adolescents, aged between 14-19 years old, participated in the study. Of this, 25 were recruited into the experimental girl group, 24 were recruited into the experimental boy group and 25 were recruited into the control girl group. All participants were living with their families of origin at the time of assessment, under parental responsibility of their birth parent(s). In order to be included in the study as part of the clinical group, participants had to be fluent English speakers who have had at least two contacts with the criminal justice system. A contact with the criminal justice system in this case was defined as an arrest, conviction or final warning for an offence leading to engagement with a youth offending team. Exclusion criteria included young people who had a diagnosed learning disability, a history of head injury, any neurological condition that affects cognitive functioning or a diagnosis of autistic spectrum disorder (ASD). In order to be included in the study as part of the control group,

participants had to be fluent English speaking girls aged 13-19 who have not had any contacts with the criminal justice system. The exclusion criteria were the same for the control group as for the clinical group

2.3 Recruitment

2.3.1 Clinical Group

Seven Youth Offending Teams/ Services (YOT/YOS) within the London metropolitan area were used to recruit adolescent boys and girls with a history of conduct problems. Following ethical approval from King's College London, YOT team leaders/ lead clinicians from all London boroughs were approached by phone and letter to gain permission to recruit from their case load (see Appendix 1 for letter). A flyer containing the most important information regarding the study was distributed (see Appendix 2 for flyer). Following this, care-coordinators and administrators from the teams that were interested in taking part identified suitable participants that met basic inclusion criteria. If 16 or over, these young people were approached by their care co-ordinator or key worker about taking part in the research. If under 16, the young person and their carer were approached about taking part. A participant information sheet was provided to the young person and carer if appropriate (see Appendix 3 & 4 for information sheets). If the young person was agreeable to take part, they were seen at their YOT or at King's College London for screening and informed consent was obtained using a consent form (in addition to parental consent form if appropriate) (see Appendix 5 & 6 for consent forms). All young people recruited from the YOT had at least two contacts with the criminal justice system.

2.3.2 Control Group

Control participants were recruited through local schools and community groups. Initially, letters were sent to 40 schools throughout London and youth groups within London (see Appendix 7 for letter). These letters were followed up by phone calls to establish whether the schools were interested in taking part

in the research. If the schools expressed an interest, the Chief Investigator organised a meeting with a teacher to discuss the research. Following this, posters were distributed to the school to advertise the research (see Appendix 8 for flyer) and interested students contacted a named teacher who added their name to an 'interested' list. The interested participants were asked to attend an information meeting with the Chief Investigator following which they were given information sheets (see Appendix 9 for information sheet). If interested, informed consent was obtained for those young people 16 and over (see Appendix 10 for consent form). For those participants under 16, parental information sheets were distributed and consent was obtained with the help of the school staff (see Appendix 11 & 12 for parental information sheet and consent form). The control participants had the option of being seen for testing at their school or at the IOP.

2.3.3. Recruitment Flow Chart

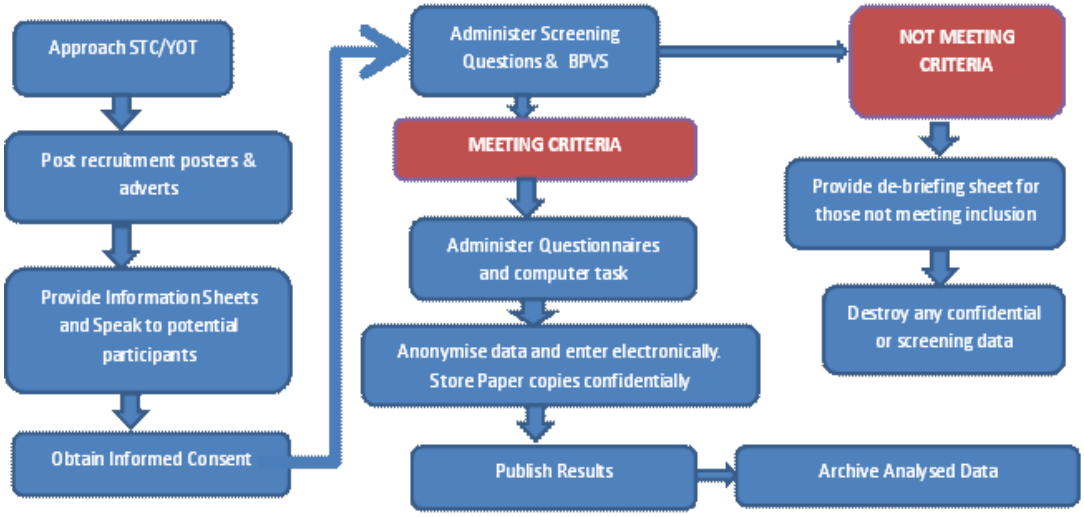

Figure 1. Recruitment Flow Chart

2.4. Ethical Considerations

This study was approved by the King's College London Psychiatry, Nursing and Midwifery Research Ethics Subcommittee study reference number: PNM/11/12-88 (see Appendix 13 for approval letter). The major ethical issue raised was that filling in questionnaires related to emotional and affective

situations may be distressing for young people, particularly those in contact with the criminal justice system. In order to minimise this risk, participants were be fully informed of the nature of the questionnaires, and warned that they include reference to emotions, feelings and situations that they may find affecting. Participants were also reminded that their participation is voluntary and that if they chose to participate they were able to withdraw from the study at any time. The other potential difficulty identified was related to the length of testing session (35-50 minutes). In order to minimise the risk of the young people becoming uncomfortable or distressed, the participants were told the time commitment clearly as part of the informed consent process and were offered a break half way through the testing if desired. All identifiable information gathered as part of this study was securely stored in accordance with clinical governance requirements and data protection guidelines. Each participant was given a unique ID code which was not stored with any personal information.

2.5. Measures

2.5.1 Inventory of Callous Unemotional Traits

The Inventory of Callous-Unemotional Traits (ICU) is a 24-item questionnaire designed to provide a comprehensive assessment of callous and unemotional traits (Frick, 2004) (see Appendix 16 for measure). The ICU was developed from the six-item CU subscale of the Antisocial Process Screening Device. The ICU has three subscales: Callousness, Uncaring, and Unemotional, each containing 8 items both negatively and positively worded. Participants rate items on a 4-point Likert scale from 0- 'Not at all true' to 3- 'Definitely true'. An example of an item loading on the Callousness scale is "I do not care who I care to get what I want". Other examples of items include "I work hard on everything I do" from the uncaring subscale and "I express my feelings openly" from the unemotional subscale. The scale has been validated in a number of studies (e.g. Essau, Sasagawa, & Frick, 2006; Kimonis et al., 2008) and has shown to be a reliable measure of CU traits in adolescents (Roose, Bijttbier, Decoene, Claes & Frick, 2010). The internal consistency of the ICU has been

shown to be good with a Cronbach's α = .77 (Essau et al., 2006). Good internal consistency of the Callous and Uncaring subscales was also demonstrated in this study with Cronbach's α of .70 and .73 respectively. Marginal internal consistency was demonstrated for the Unemotional subscale with a Cronbach's α of .64. Other studies have found similar results when examining the psychometric properties of the ICU (e.g. Roose et al., 2010; Kimonis et al., 2008).

2.5.2 Lexical Decision Task

The Lexical Decision Task (LDT) is a computerised measure of attentional orienting responses to words or different emotional valences and has been developed for use in young people by Loney et al., in 2003. In the task, participants are presented with a series of letter strings and they must decide if they are words or non-words. The words include positive, negative and neutral words. The non-words were created by changing one letter of each real word in the task (e.g. soul to siul). The words and their emotional valence ratings were obtained from Toglia and Battiga's (1978) word norms while the frequency of words was derived from Kucera and Francis' norms (1967). To be suitable for adolescents, the study only used words with 4 letters or less and that had a concreteness rating of 2.75 of more. Examples of the words used include soul (positive), dead (negative), ring (neutral) (see Appendix 17 for list of words). 90 words and 90 non words were included in the trial making a total of 180 trials which are presented horizontally, at random and are not repeated. Prior to completing the task, a practice session of 20 items is presented to the participants. The lexical decision task was presented on a Packard Bell EasyNote TS13HR laptop computer with a 1366 x 769 resolution.

The first part of the task involved participants rating each item on a 5-point Likert scale where a score of 1 indicates an extremely negative rating and a score of 5 indicates an extremely positive rating. Scores of 3 indicate neutral ratings. Participants then sat at the computer and were given both verbal and visual task instructions. These instructions asked participants to press the left shift key on the keyboard if the letter string on the screen spells a word and the

right shift key on the keyboard if the letter string on the screen spells a non-word. Each letter string was displayed in the centre of a black screen and the letters were .5cm high and .2cm wide. This resulted in letter strings approximately .5cm tall and 1cm wide. Each letter string remained on screen until the participant chose an option. Once they selected, there was a break of 2000ms before the next letter string was presented. Each participant was given a practice block of 18 letter strings to familiarise themselves with the task. Following this, they were informed that the real task was beginning. The letter strings were presented in 10 blocks of 18 word strings separated by 20 second breaks. A larger break of two minutes was given after 5 blocks (see Appendix 18 for instructions).

The lexical decision task is scored by examining each participant's reaction times to the words presented (i.e. how long it took them to classify the letter string as a word or a nonword). First, a positive difference score is calculated. This is created by determining each participant's average response time to the positive words. This score is then subtracted from the average response time to neutral words. Similarly, a negative difference score is calculated by subtracting each participant's average response time to negative words from their average response time to neutral words. These scores represent the amount of facilitation exhibited in response to emotional stimuli.

2.5.3 Basic Empathy Scale

The Basic Empathy Scale (BES) is a self-report measure of empathy in adolescents developed by Joliffe and Farrington in 2006 (see Appendix 14 for measure). The scale has two factors: cognitive empathy and emotional empathy. Studies have shown the scale to have good validity (e.g. Joliffe & Farrington, 2006) and to be culturally transferable (e.g. D'Ambrosio, Olivier, Didon & Besche, 2009; Geng, Xia & Qin, 2012). It consists of 20 items in which adolescents rate their agreement with statements on a 5-point Likert scale anchored by 1: Strongly Disagree and 5: Strongly Agree. Examples of items from the cognitive subscale include "It is hard for me to understand when my friends are sad" and "I can understand my friend's happiness when he/she does

well at something" whilst examples of items from the affective subscale include "I usually feel calm when other people are scared" and "my friends emotions don't affect me much". The sum of the cognitive subscale is composed of 9 items (range 9-45) whilst the sum of the affective subscale is composed of 11 items (range 11-55). The total score ranges between 20 and 100.

The scale was originally developed and validated in a sample of 363 adolescents (194 males, 169 females) with a mean age of 14.8 recruited through schools in the UK. The scale as a whole has been shown to have good reliability (Cronbach's α= .87, males=.85, females=.83) (Joliffe & Farrington, 2011). Both of the subscales have been shown to have good internal consistency in a number of previous studies. The original validation study by Joliffe and Farrington in 2006 found a Cronbach's α of .85 for the affective component and .79 for the cognitive component. Other studies have found similar results with Cronbach's α of 0.81 for the cognitive scale and 0.75 for the affective scale (Topcu, C & Erdur-Baker, O., 2012).

2.5.4 Abbreviated Dysregulation Inventory

The Abbreviated Dysregulation Inventory (ADI) is a self-report measure of dysregulation in children and adolescents aged between 10 and 22 (Mezzich, Tarter, Giancola & Kirisci, 2001) (see Appendix 15 for measure). The scale has 30 items which measure behavioural, cognitive and affective dysregulation. Examples of test items include "I have trouble controlling my anger" on the affective subscale, "I can't seem to stop moving" on the behavioural subscale and "I think about the future consequences of my actions" on the cognitive subscale. Participants rate how much they feel statements are descriptive of them on a 4- point Likert scale (0= 'never true' to 3 = 'always true'). Items on the ADI have good internal consistency, evidence for construct validity, and were designed for use with adolescents (Mezzich et al., 2001; Pardini, Lochman, & Frick, 2003). Studies have shown good internal consistency of all there subscales: behavioural (Cronbach's α = .80, Marsee & Frick, 2007), affective (Cronbach's α = .88, Marsee & Frick, 2007) and cognitive (Cronbach's α = .84, Mezzich et al., 2001). In particular the affective subscale

has been shown to be a useful measure in measuring emotional dysregulation in children with externalising behaviour (Pardini et al., 2003)

2.5.5 IQ Scale

The Wechsler Abbreviated Scale of Intelligence (WASI) is an individually administered test of intelligence developed in 1999 in order to provide a short, reliable measure of intelligence. The two subtest format of the WASI (Weschler, 1999) was developed to provide a reliable method to obtain a brief measure of general ability of people aged between 6-89 years old. The two-subtest form of the WASI takes approximately 15 minutes to administer. The two subtests that are part of the scale are Vocabulary and Matrix Reasoning which together yield a Full Scale IQ (FSIQ). The Vocabulary subtest contains 42 written words that are presented visually and verbally to participants who are asked to verbally define their understanding of that word. The Matrix Reasoning subtest consists of 35 incomplete visual patterns. The participant chooses between five possible responses to complete the pattern. For all subtests, raw scores are converted to T scores with all IQ scores having a mean of 100 and a standard deviation of 15 (Keith, Lindskog & Smith, 2004). The WASI was chosen for use in this particular study over other tests as a short test was needed due to time constraints. The WASI is considered to have strong psychometric properties. At the subtest level the WASI yields a reliability coefficient from .90 to .98 for Vocabulary from .88 to .96 for matrix reasoning.

2.6 Testing environment

All 49 participants with conduct problems were seen for testing at Youth Offending Teams (YOTS) in the community. All control participants (21) were seen for testing at three different secondary schools and sixth form colleges within the London area. All testing rooms were set up the same fashion, with the participant and chief investigator sitting opposite one another across a desk on which the questionnaires and computer task were completed. The computer task was completed using a laptop computer.

2.7 Procedure

Each participant was seen alone in a single session that took approximately 30-55 minutes in total. The testing was conducted in a confidential setting which encouraged the young person to feel safe enough to respond freely to the stimuli provided. The first part of the experiment involved the participant completing the WASI two-subtest IQ test. Following this, the subtests were totalled by the examiner. If the participant scored a FSIQ of under 70 they did not meet inclusion criteria. This happened on two occasions. These participants were debriefed and their data was destroyed and not included in the study. Following this, if participants obtained a FSIQ of 70 or higher, they were then asked to complete the battery of questionnaires. These were administered in paper form in the order of ICU, BAS and ADI. Verbal and written instructions were given for each questionnaire. Following the completion of the questionnaires, participants completed paper copies of the pleasantness scale of the lexical decision task and the laptop computer was then placed in front of the participant. Verbal and written instructions about the lexical decision task were provided and participants had a practice session. Following this, the whole task was presented. Upon completion of the testing, participants were given a £10 voucher for their time and participation.

2.8 Power Analysis

A power analysis using nQuery Advisor 4.0 informed the sample size of the study necessary to detect a significant effect. The data was based on research by Essau et al.(2006) which validated the use of the ICU within a sample of adolescent boys and girls aged between 13-18 years of age. This study found a significant gender difference in scores on the ICU and reported a large effect size (partial eta squared 0.15). More recent data (Stickle et al., 2012) found a medium effect size (partial eta squared 0.08) when comparing adolescent girls and boys on the ICU, again reporting higher scores in the male group. Given the time frame for the current research, the feasibility of recruitment in this timeframe with a traditionally difficult to recruit population and the lack of a clear evidence base examining callous unemotional traits and emotional

processes in adolescent females with conduct problems we aimed to achieve a medium effect size in the current study. Power analysis using nQuery Advisor 4.0 indicated that two groups of 25 participants would have 80% power to detect a difference in mean scores between girls and boys using a two group t-test with a 0.05 two-tailed significance level.

2.9 Plan of Analysis

As the primary aim of the current study was to examine group differences on a number of self-report and computerised measures, the data was primarily analysed using t-tests and analyses of variance. As the key independent variable for this study was categorical (i.e. gender) the decision was made to utilise an ANOVA and it's variants to examine the data. This decision was also influenced by previous research in the area. This study hoped to replicate and expand upon results reported by Stickle et al.(2012) and Dadds et al.(2009) which also used ANOVA and it's variants as the core statistical test. More specifically, primary hypothesis 1 was analysed using independent measures t-tests whilst primary hypothesis 2 was analysed using a MANOVA. As hypothesis three involved comparing both within group and between group factors, a mixed methods ANOVA was employed.

A median split of the ICU was performed for both boys and girls separately to classify those participants "high" and "low" in CU traits. This approach has been employed frequently in previous research investigating CU traits in children and adolescents in part due to the fact that there is no established cut off for clinical levels of CU traits on the ICU (e.g. Kimonis et al., 2008; Viding et al., 2012; Hawes et al., 2007; Jones et al., 2010). This procedure was done in the three experimental groups (girls with conduct problems, control girls and boys with conduct problems). This methodology helped to ensure that there was an adequate sampling of girls who were high on psychopathic traits as previous research has found that girls with conduct problems have lower overall levels of CU traits than boys with conduct problems (Silverthorn et al., 2001). By using this approach, it was possible to examine the moderating role of gender in differences between high and low CU groups. The median split was performed

at a score of 35 on the ICU. A median split of the abbreviated dysregulation inventory was also performed so that it could be included into the MANOVA analysis to assess its impact on the relationship between affective empathy and CU traits. There is also no set cut off in the ADI and this method has been used previous in similar research (e.g. Marsee et al., 2007)

In order to account for multiple comparisons, Bonferroni adjusted p-values were obtained from SPSS and reported in all MANOVAs. The data was analysed using SPSS version 20.0 and Microsoft Excel 2011.

3. Results

3.1 Demographics

In total, 74 adolescents with an average age of 16.49 (SD= 1.088, range = 14-19) took part in this study. The demographic breakdown of the sample is described below in Table 1. These young people were recruited into three separate groups; 25 into the Adolescent Female with Conduct Problems group (F-CP), 24 into the Adolescent males with Conduct Problems group (M-CP) and 21 into the Adolescent Female Control group (F-Con). In terms of ethnicity, the sample coded as White, Black or Black British, Asian or British Asian or Mixed Race. In addition to this, the primary offence for which the young person was engaged with each Youth Offending Team was recorded. For the female group the most common offence was violence against the person including assault (44%) followed by robbery (24%) and criminal damage (32%). For the male group, the most common offence was also violence against the person including assault (50%), following by robbery (25%), Criminal Damage (16.7%) and burglary (4.2%).

Table 1: Demographic Breakdown of the Sample by Group

	F-CP (n= 25)	**M-CP (n=24)**	**F-Con (n=21)**
Age	16.68 (.99)	16.25 (.99)	16.25 (1.26)
Ethnic Origin			
White	9 (36%)	8 (33%)	5(24%)
Black or Black British	2 (8%)	3 (13%)	5(24%)
Asian or Asian British	7 (28%)	5 (21%)	8(38 %)
Mixed Race	7 (28%)	8 (33%)	3(14%)
Offence			
Violence against person (incl. Assault)	11 (44%)	12 (50%)	
Robbery	6 (24%)	6 (25%)	
Burglary	2 (8%)	1 (4%)	
Criminal Damage	6 (24%)	4 (17%)	
IQ	89 (10.20)	91 (12.02)	97 (9.98)

* F-CP = Females with conduct problems; M-CP =Males with conduct problems; F-Con = Control Females

3.2. Preliminary Analysis

A preliminary analysis of the data was conducted to investigate if significant differences existed between the samples in terms of demographic factors.

3.2.1 Age

A univariate independent samples ANOVA revealed no significant difference in age between the groups, $F(2, 67) = 1.15.$, $p = .38$.

3.2.2 Ethnicity

Given that some ethnic categories had an expected frequency of less than 5, a Chi-Squared independence test could not be used and a Fisher's exact test was utilised instead to compare the breakdown of ethnicity across groups. The results of this test were non-significant, p= .52

3.2.3 Offence

A Chi-Squared test of independence was utilised instead to compare the distribution of offences across groups. This analysis revealed no significant differences between the F-CP and M-CP groups, c^2 (3, N = 49) = .70, p = .89

3.2.4 IQ

A univariate independent samples ANOVA revealed a significant difference beween groups, F (2, 67) = 3.32, p <.05. Further pos-hoc analysis using the Tukey HSD test revealed that there was a significant difference between the F-CP group (M= 93, SD = 10.20) and the F-Con group (M = 97, SD = 9.98). Although there was also a significant difference between the M-CP group (M = 82, SD = 12.02) and the F-Con group, there was no significant difference between the F-CP and the M-CP group.

3.3 Analysis of Normality and Outliers

Data collected in this study were examined to establish whether they met the assumptions of normal distribution. This was done using visual inspection of quantile-quantile (Q-Q) plots along with the values of skew and kurtosis. All scores were converted to z scores and the value of 2.58 (Field, 2009) was used as a cut off for acceptable associated z scores (Appendix 19). When considering the self-report questionnaires being used in this study, both the ICU and the ADI met the assumptions of normal distribution. On initial inspection, the BES did not. Following this, two participants were removed from the BES dataset as their data resulted in significant outliers (>2.5 SD away from the mean). This

improved normality for the BES. Descriptive statistics were examined for all data collected, in the form of means (M), standard deviations (SD), percentages, frequencies and ranges.

Upon examining the lexical decision task data, responses were excluded from analysis if they were more than 2.5 SD away from that participants mean overall response time. This was done to ensure that no outliers had a disproportionate influence on the participant's scores. In addition to this, on the lexical decision task any incorrect responses (i.e. a word classified as a non-word or vice-versa) were also excluded from the analysis. In line with guidance from Loney et al.(2003), overall facilitation scores deviating more than 2.75 SD from the sample mean were excluded, again to minimise the influence of outliers. This resulted in two participants being removed from the Neu-Neg analysis and three participants being removed from the Neu-Pos analysis.

3.4 Self-Report Study Variables

The mean and standard deviation of scores on the Inventory of Callous Unemotional Traits (ICU), Basic Empathy Scale and Abbreviated Dysregulation Inventory are detailed below in Table 2. This table shows the breakdown of scores according to each experimental group: The female conduct problem group (F-CP), the male conduct problem group (M-CP) and the female control group (F-Con). The scores on the individual subscales of each measure is also provided (ICU; Callousness, Uncaring and Unemotional, BES; Cognitive Empathy and Affective Empathy, ADI; Behavioural Dysregulation, Emotional Dysregulation and Cognitive Dysregulation.

Table 2: Means and SD for the Main Self-Report Variables by Group

	F-CP	M-CP	F-Con
ICU Total	34.16 (6.74)	38.83 (4.77)	28.05 (5.70)
Callousness	13.04 (3.51)	14.58 (4.11)	8.38 (3.76)
Uncaring	13.24 (4.59)	15.17 (3.17)	13.52 (3.91)
Unemotional	7.88 (2.59)	9.08 (4.11)	6.14 (2.13)
LDT Neu-Neg	26.97 (48.33)	-18.70 (41.00)	19.97 (30.80)
LDT Neu-Pos	40.69 (55.02)	-8.51 (23.97)	38.29 (46.32)
BES total	64.96 (5.69)	58.25 (11.10)	67.38 (11.39)
CE	32.28 (3.26)	28.04 (5.32)	32.24 (7.12)
AE	33.88 (8.41)	29.88 (6.80)	35.14 (5.81)
ADI total	45.96 (8.21)	45.58 (12.50)	39.72 (9.98)
BD	13.92 (4.97)	17.04 (4.93)	12.44 (4.37)
CD	14.68 (6.00)	13.96 (6.50)	14.16 (4.04)
ED	17.44 (3.99)	14.60 (5.58)	12.80 (5.50)

*ICU = Inventory of Callous Unemotional Traits; BES = Basic Empathy Scale; CE= Cognitive Empathy; AE= Affective Empathy; ADI = Abbreviated Dysregulation Inventory; BD = Behavioural Dysregulation; CD = Cognitive Dysregulation; ED = Emotional Dysregulation;; LDT Neu-Neg = Lexical decision Neutral- Negative score; LDT Neu-Pos = Lexical decision Task Neutral – Positive score

3.4.1 Inventory of Callous Unemotional Traits

The sample of adolescent males with conduct problems scored highest on the overall ICU and on its subscales. The sample of adolescent females with conduct problems scored the second highest whilst the sample of control females scored the lowest overall. There was one exception to this on the uncaring subscale, where the female controls scored marginally higher than the females with conduct problems although this difference was not significant. When looking at the ICU subscales in more detail, it is notable that scores on

the Callousness and Uncaring subscale are largely in line across groups, with the exception of the Callousness subscale in the control female group.

3.4.2 Lexical Decision Task

Two scores were derived from LDT data: A positive differences score (Neu-Pos) and a negative difference score (Neu-Neg). Both of these scores were calculated by subtracting the mean response time to emotional words (either negative or positive) from the mean response time to neutral words. These difference scores represent the amount of recognition time facilitation shown by the participants in response to affective stimuli. The Neu-Neg and the Neu-Pos scores represent the overall difference in reaction time shown by participants when responding to emotional words v. neutral words. A negative value for these scores means that overall, participants responded to emotional words slower than neutral words. A positive value for these scores means that overall, participants responded to emotional words faster than neutral words. A clear pattern emerges in the data which shows that all the groups responded quicker to positive words than to negative words. However, interestingly both female groups showed positive facilitation scores to negative and positive words whilst males showed negative facilitation scores to negative and positive words.

3.4.3 Basic Empathy Scale

When considering overall empathy as measured by the BES, females scored highest followed by females with conduct problems and then males with conduct problems. This pattern was also observed in the cognitive and affective subscales.

3.4.4 Abbreviated Dysregulation Inventory

On the Abbreviated Dysregulation Inventory, males and females with conduct problems scored largely in line with one another. However, when examining the subscales it is clear that the sample of females with conduct problems scored highest on the ED subscale. The control females scored the lowest on this scale

whilst the males with conduct problems scored in between. Interestingly a number of interesting patterns emerge within the subscales. Whilst females with conduct problems scored highest on the ED subscale, males with conduct problems scored highest on the BD subscale.

3.5 Results Relating to Primary Hypotheses

3.5.1 Hypothesis 1: Girls with Conduct Problems will show a different pattern of emotional responding when compared to boys with conduct problems as defined by:

a) *Higher levels of affective empathy*
b) *Higher levels of emotional dysregulation*
c) *Lower levels of CU traits*

An initial independent samples t-test examined the three self-report emotional variables as dependent variables (DV) and the participants group (i.e. F-CP, M-CP) as the independent variable (IV). As reported earlier, no significant differences in age, ethnicity or IQ was found between the groups so these variables were not included as covariates in the analysis. This t-test revealed a significant difference between boys and girls on overall level of CU traits, affective empathy and emotional dysregulation, $t(47) = 2.07$, $p<.05$. The means and standard deviations are detailed below in Table 3 and the result of this analysis is outlined in Table 4 below.

Table 3: Mean (SD) of groups in t-test analysis

Variable	**F-Con (n = 25)**	**M-Con (n = 24)**
ICU	34.16 (6.74)	38.83 (4.77)
AE	33.88 (8.41)	29.88 (6.80)
ED	17.44 (3.99)	14.6 (5.58)

*ICU = Inventory of Callous Unemotional Traits; AE= Affective Empathy; ED= Emotional Dysregulation

Table 4: Result of t-test Conducted on Self-Report Variables between Boys and Girls

					95% Simultaneous Confidence Interval	
	T score	**Sig.**	**Mean Difference**	**Standard Error of Difference**	**Lower**	**Upper**
ICU	-2.79	.01	-4.67	1.67	-8.04	-1.31
AE	2.08	.04	3.85	1.85	.12	7.57
ED	2.07	.04	2.86	1.38	.08	5.64

*ICU = Inventory of Callous Unemotional Traits; AE= Affective Empathy; ED= Emotional Dysregulation

In summary, this hypothesis was supported as females with conduct problems reported higher levels of affective empathy, lower levels of CU traits and higher levels of emotional dysregulation than males with conduct problems.

3.5.2 Hypothesis 2 There will be gender differences in the relationship between CU traits and empathy as characterised by:

a) *Higher CU traits will be associated with both lower affective and cognitive empathy in boys*
b) *Higher CU traits will be associated with lower cognitive empathy but not with lower affective empathy in girls*

A multivariate analysis of variance (MANOVA) was conducted using gender (girl v. boy) and ICU group (High v. Low) as independent variables and scores on the affective and cognitive subscale of the BES as dependent variables. SPSS Bonferroni corrected p-values are quoted in this section. The characteristics of the ICU groups are provided below in Table 5 and the means and standard

deviations of cognitive and affective empathy across groups are outlined in Table 6.

Table 5. Mean (SD) and range of ICU scores in Low and High CU groups

	Low CU group	**High CU group**
ICU score	29.75 (5.60), 19-35	39.15 (2.50), 36-43

Table 6. Means (SD) of cognitive and affective empathy in both high and low CU groups

		CE	**AE**
F-Con	High CU (n =13)	29.08 (5.22)	35.85 (5.86)
	Low CU (n = 12)	30.92 (5.63)	32.67 (6.01)
M-Con	High CU (n = 17)	26.17 (8.00)	26.50 (7.63)
	Low CU (n = 7)	34.00 (3.90)	33.50 (4.76)

*CE= Cognitive Empathy; AE= Affective Empathy

A significant multivariate interaction effect was found for gender x ICU group, Wilks' λ = .87, F (2, 44) = 3.33, p = .04, η^2= .13. Further analysis of the univariate effects revealed a significant main effects of gender on affective empathy F (1, 45) = 4.46, p= .04, η^2 = .09. In addition, a significant main effect of ICU group on cognitive empathy was detected F (1, 45) = 6.02, p = .02, η^2= .12. Finally, a significant interaction effect between ICU group and gender on affective empathy was detected F (1, 45) = 6.38, p= .02, η^2= .12. Figures 2 and 3 represent the interaction effect between ICU group and gender on affective empathy and the decrease in cognitive empathy with increasing CU traits. In summary, this hypothesis was supported as a gender difference was detected between groups. More specifically, boys who were high in CU traits scored lower on cognitive and affective empathy when compared to boys who were low in CU traits. However, girls who were high in CU traits scored lower on cognitive empathy when compared to girls who were low in CU traits, but not on affective empathy.

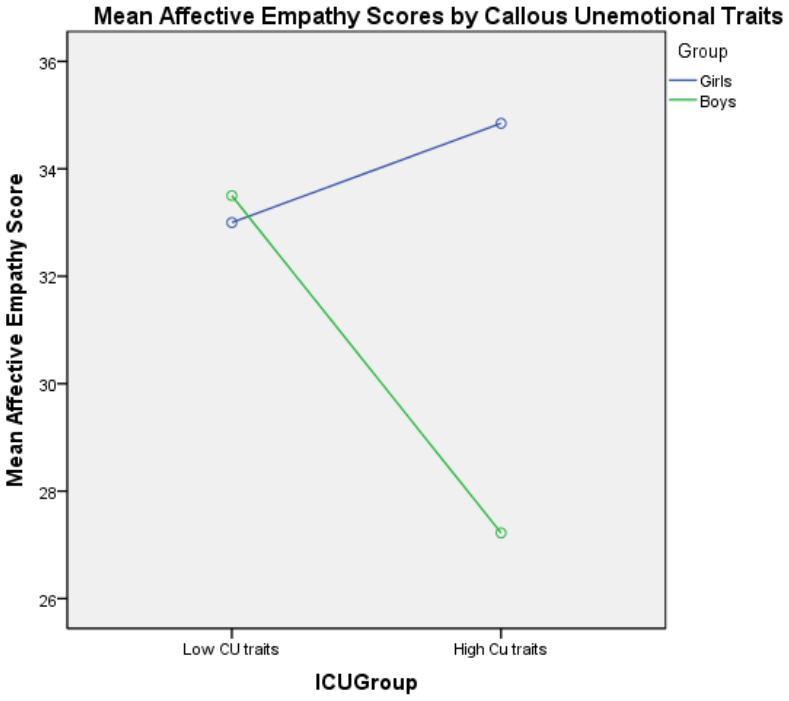

Figure 2. Mean Affective Empathy Scores by Gender and ICU Group

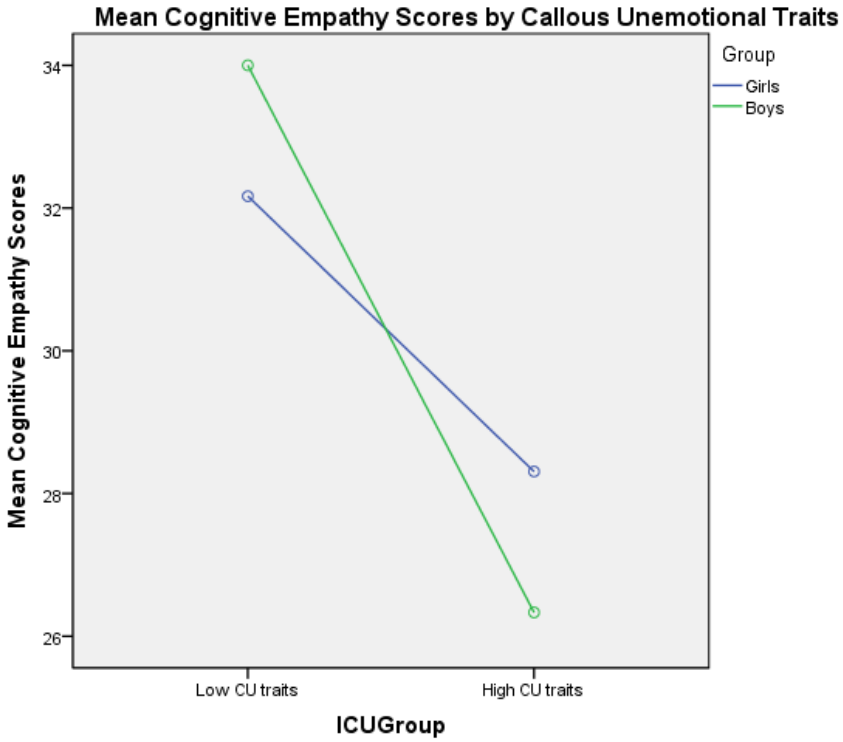

Figure 3: Mean Cognitive Empathy Scores by Gender and ICU Group

3.5.3 Hypothesis 3: The relationship between affective empathy and CU traits in girls will be moderated by emotional dysregulation.

The potential moderating role of emotional dysregulation was investigated using a median split which was entered as a third between subjects factor (high emotional dysregulation v. low emotional dysregulation) in the MANOVA. The means and standard deviations of cognitive and affective empathy across the groups are provided in Table 7 below. The predicted interaction effect between emotional dysregulation, gender and callous unemotional traits was not significant, although a non-significant trend was detected, Wilks $\lambda = .88$, $F(1, 41) = 2.72$, $p = .08$. Therefore, this hypothesis was not upheld as there was no significant impact of emotional dysregulation on the relationship between affective empathy and CU traits in girls.

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Table 7. Means (SD) of cognitive and affective empathy in high and low emotional dysregulation groups

			AE	CE
F-CP Low CU	Low ED	n= 3	35.50 (7.78)	22.50 (9.19)
N = 12	High ED	n= 9	32.50 (5.70)	34.10 (3.35)
F-CP High CU	Low ED	n = 8	35.75 (6.39)	30.00 (2.40)
N = 13	High ED	n = 5	33.40 (2.88)	25.60 (6.73)
M-CP Low CU	Low ED	n = 4	34.25 (5.74)	34.25 (3.40)
N = 7	High ED	n = 3	32.00 (2.83)	33.50 (6.37)
M-CP High CU	Low ED	n = 12	29.38 (8.63)	25.38 (8.92)
N = 17	High ED	n = 5	32.60 (6.20)	28.80 (5.02)

3.5.4 Hypothesis 4: Girls with conduct problems and CU traits will show normal emotional facilitation to emotional words on the lexical decision task whilst boys with conduct problems and CU traits will not.

As detailed above, two scores were calculated for each participant, Neu-Neg (the average response time to negative words subtracted from neutral words) and Neu-Pos (the average response time to positive words subtracted from

neutral words). The hypothesis of whether gender differences would be found on response facilitation between those who score high on CU traits and those who score low on CU traits was explored using a 2 (High CU traits v. Low Cu traits) x 2 (Girl v. Boy) x 2 (Positive v. Negative) mixed model ANOVA with CU level and gender as the between subjects factor and Valence as the within subjects factor. Two participant was removed from the analysis due to their scores being classified as outliers as outlined in the plan of analysis. Therefore within the M-CP group, n = 23 and within the F-CP group, n = 24. This analysis revealed a main effect of Gender (male v. female), F (1,43) = 15.02, p = .01, η^2 = .25. In addition to this, a significant interaction effect was found for Gender v. ICU group, F (1, 43) = 5.43, P = .04, η^2 = .11, The predicted interaction between gender, valence and ICU group was not found F (1, 43) = .43, p = .51, η^2 = .09. This hypothesis was supported as girls showed normal emotional facilitation to both positive and negative emotional words regardless of their level of CU traits. In contrast, boys with high CU traits showed a lack of facilitation to both positive and negative emotional words.

3.6 Secondary Hypotheses:

3.6.1 Secondary Hypothesis 1: Girls with conduct problems will show a different pattern of emotional responding when compared to control girls as characterised by:

a) *Lower levels of affective empathy*
b) *Higher levels of emotional dysregulation*
c) *Higher levels of CU traits*

An independent samples t-test examined the three self-report emotional variables as dependent variables (DV) and the participants group (i.e. F-CP, F-CON) as the independent variable (IV). In terms of CU traits, females with conduct problems scored significantly higher than control females. Females with conduct problems also scored significantly higher than control girls on emotional dysregulation however there was no significant differences found

between girls and controls in affective empathy. The results of this t-test are detailed below in Table 8.

Table 8: Result of t-test Conducted on Self-Report Variables between Girls and Control Girls

					95% Simultaneous Confidence Interval	
	T score	**Sig**	**Mean Difference**	**Standard Error of Difference**	**Lower**	**Upper**
CU traits	2.63	.01	4.84	1.84	1.14	8.56
AE	2.08	.18	-2.04	1.51	-5.01	.99
ED	3.41	.01	4.64	1.36	1.90	7.40

3.6.2 Secondary Hypothesis 2: CU traits will be associated with a deficit in both affective and cognitive empathy in females

A multivariate analysis of variance (MANOVA) was conducted using group (conduct problem v. control) and ICU group (High v. Low) as independent variables and scores on the affective and cognitive subscale of the BES as dependent variables. A significant multivariate main effect of ICU group was found, Wilks' $\lambda = .87$, F (2, 45) = 3.40, $p = .04$, $\eta^2 = .13$. Further analysis of the univariate effects revealed a significant main effect of ICU group on cognitive empathy F (1,46) = 6.63, p =.02, $\eta^2 = .13$. No significant interaction effects were detected between ICU group and group on affective or cognitive empathy. Therefore, this hypothesis was only partially supported as both control and conduct problem girls high in CU traits reported less cognitive empathy but not less affective empathy.

3.6.3 Secondary Hypothesis 3: There will be no difference in facilitation to emotional words between girls with conduct disorder and control girls.

The difference in emotional facilitation using the lexical decision task was explored using a 2 (High CU traits v. Low Cu traits) x 2 (Conduct problems v. Control) x 2 (Positive v. Negative) mixed model ANOVA with CU level and group as the between subjects factor and valence as the within subjects factor. One participant was removed from the F-Con group as their scores were classified as an outlier therefore within the F-CP group, n= 25 and within the F-Con group, n= 20. This analysis did not reveal any main effects or interaction effects. This hypothesis was supported as there was no difference in emotional facilitation between control girls and conduct disorder girls.

4. Discussion

4.1 Overview

This chapter will summarise and discuss the findings of the current study. First, the aims and methods of the study will be summarised, followed by the main results considering each of the hypotheses in turn. A more general discussion of the findings will then be considered including a discussion of the limitations of the current research as well as directions for further research.

The aim of the study was to compare a group of adolescent females with conduct problems and a history of offending behaviour to a similarly matched group of male adolescents and a group of community dwelling adolescent female controls. Given that there have been mixed research findings as to whether models of callous unemotional traits are applicable to female adolescents as well as male adolescents, this study aimed to clarify the relationship between CU traits and emotional correlates already considered within the male literature. In particular, the present research aimed to investigate the different patterns of emotional responding in each of these groups by using both self-report questionnaire data and a computerised reaction time task. More specifically, the relationship between CU traits and affective empathy, emotional dysregulation and emotional responding to both positive and negative stimuli were examined through well validated measures used previously in similar research. This study therefore provides a unique contribution to the evidence base in which studies focusing on gender differences in adolescents with CU traits have been rare.

4.2 Summary of Main Findings

To summarise, the main findings of findings of the research are reported in terms of the hypotheses:

4.2.1 Hypothesis 1: Females with conduct problems will show a different pattern of responding than males with conduct problems

Previous research has suggested that adolescent females with conduct problems may show different patterns of emotional responses when compared to adolescent males with conduct problems (e.g. Dadds et al., 2009; Stickle et al., 2012). Indeed our analysis revealed a significant difference between adolescent males with conduct problems and adolescent females with conduct problems on measures of emotional responding. More specifically, the results show that adolescent girls with conduct problems had significantly higher levels of affective empathy and emotional dysregulation and significantly lower levels of CU traits.

4.2.2 Hypothesis 2 There will be gender differences in the relationship between CU traits and empathy as characterised by:

c) *Higher CU traits will be associated with both lower affective and cognitive empathy in boys*
d) *Higher CU traits will be associated with lower cognitive empathy but not with lower affective empathy in girls*

Dadds et al. (2009) found that there was no significant relationship between CU traits and affective empathy in a large community sample of adolescent females. However, the majority of the literature would suggest that CU traits are associated with deficits in both cognitive and affective empathy in boys at least (Pardini et al., 2003). This study sought to clarify this finding within a clinical sample of adolescent girls and boys. The current research only partially supports this hypothesis. It suggests that within a sample of adolescent females, higher CU traits were not related to lowered levels of self-reported affective empathy. Interestingly however, the same pattern was not found for cognitive empathy. In other words, there was no difference in affective empathy based on the level of CU traits within the sample of adolescent females however high CU traits were associated with lower cognitive empathy. Conversely, when examining the

sample of male adolescents with conduct problems, a clear relationship between high CU traits and low cognitive and affective empathy was detected.

4.2.3 Hypothesis 3: The relationship between CU traits and affective empathy will be stronger in girls with low levels of emotional dysregulation

In order to better understand the relationship between CU traits and affective empathy in females, the sample was divided into two groups; those girls who scored highly on a measure of emotional dysregulation and those females that scored low on a measure of emotional dysregulation. When this split was done, there was no significant effect of emotional dysregulation on the relationship between callous unemotional traits and affective empathy. This result was consistent across both adolescent boys and adolescent girls.

4.2.4 Hypothesis 4: There will be a gender difference in attentional facilitation to emotional words on the lexical decision task.

The lexical decision task has been used in previous studies (e.g. Loney et al. 2003; Frick et al. 2003) with a community sample of adolescents (including girls) and an adjucated sample of boys. This study sought to extend the literature by using this task with a sample of both adolescent females and males with conduct problems. The analysis revealed that there was a significant effect of callous unemotional traits on task performance but only within the male sample. In other words, those boys who scored highly on the ICU showed less facilitation to emotional words than those who scored low on the ICU. Interestingly, in the current sample, no interaction was found with valence meaning that this effect was evident with both positive and negative words. Within the female sample, there was no effect of CU group on emotional facilitation. In other words, females showed greater attentional facilitation to emotional words than boys and this was regardless of whether they scored highly on a measure of CU traits.

4.3 Summary of Secondary Findings

4.3.1 Hypothesis 1: Girls with conduct problems will show a different pattern of emotional responding when compared to control girls

Previous research has suggested that adolescent females with conduct problems may show different patterns of emotional responding when compared to females without conduct problems (Anastassiou-Hadjicharalambous & Warden, 2008). In support of this, the current analysis found a significant difference between adolescent females with conduct problems and control adolescent females on measures of emotional responding. More specifically, the results show that adolescent girls with conduct problems had significantly higher levels of emotional dysregulation and CU traits when compared to control girls. Interestingly however, there was no significant difference found in the level of affective empathy between the groups.

4.3.2 Hypothesis 2: CU traits will be associated with a deficit in both affective and cognitive empathy in females.

This analysis suggests that when considering both adolescent females with conduct problems and control adolescent females, higher CU traits are associated with lower cognitive empathy. However, higher CU traits were not found to be associated with lower affective empathy. Furthermore, there was no significant difference found between the groups suggesting that adolescent females with conduct problems do not have significantly different levels of self-reported empathy when compared to control adolescent females.

4.3.3 Hypothesis 3: There will be no difference in facilitation to emotional words as measured by the lexical decision task between control girls and girls with conduct problems.

This analysis suggests that both control females and females with conduct problems show normal levels of facilitation to emotional words as measured by

the lexical decision task. There were no significant differences between the groups and there was no impact of valence.

4.4 Discussion of Findings

The findings of the current research highlight the need to understand not only gender differences in adolescent antisocial behaviour and conduct problems within the juvenile criminal justice system, but also factors associated with the clear differences found within our groups of adolescent girls. Although much research has focused on understanding gender differences in the onset and pattern of conduct problems, few studies have examined correlates of antisocial behaviour in girls. The studies that do, tend to focus on school aged children rather than adolescents. With that said, the results of our preliminary analysis of gender differences in adolescents with conduct problems are in line with what would be expected based on the existing literature. That is, adolescent males with conduct problems show significantly higher levels of CU traits than adolescent females with conduct problems (e.g. Frick et al., 2003; Pardini et al., 2003). Therefore, the current study provides further evidence for the construct validity of the ICU as a measurement of CU traits within this population.

In addition, our sample of adolescent girls with conduct problems reported significantly higher levels of CU traits when compared to an age and demographic matched control sample. This is also in line with the current evidence base (e.g. Dadds et al., 2008). Furthermore, our sample supports other research which suggests that females with conduct problems are more emotionally dysregulated than males with conduct problems, yet report higher levels of affective empathy. In other words, these girls report higher overall levels of emotionality (Essau et al., 2006; Joliffe & Farrington, 2006). Interestingly, when comparing the girls with conduct problems to control girls, there was no difference found on self-reported affective empathy. Although there have not been many studies addressing this question, research has shown significant differences in empathy between girls with conduct problems and control girls (Cohen & Strayer, 1996; Anastassiou-Hadjicharalambous & Warden, 2008). However, this research has primarily been conducted in young

girls, for example the average age of girls included in the Anastassiou-Hadjicharalambous study was 9 years old. Interestingly, our findings have however been mirrored in the adult literature. In a study by Goldstein and Higgins-D'Alessandro (2001) no significant difference was found between female prison inmates and female controls on a measure of affective empathy. Therefore, it seems as though the profile of our sample of adolescent girls with conduct problems is more similar to that of adult offending females at least in terms of affective empathy.

4.5 The Relationship between Empathy and CU traits

The results of the current study suggest that whilst females with high levels of CU traits show a deficit in cognitive empathy, they do not report low levels of affective empathy. These findings are somewhat surprising given that a lack of empathy is a central construct in the definition of CU traits and as previous models have suggested that CU traits are associated with a deficit in both cognitive and affective empathy (Marsee & Frick, 2007; Pardini et al., 2003). However, this study does lend support to research that has found differences in the relationship between empathy and CU traits in females. As mentioned previously, Dadds et al.(2009) found that high CU traits were associated with a deficit in cognitive empathy but not in affective empathy in a large community sample of adolescent girls When considered alongside other evidence which shows that higher levels of antisocial (Zahn-Waxler, Cole, Welsh & Fox, 1995) and aggressive (Stickle et al., 2012) behaviour are actually associated with higher levels of affective empathy, the current study is consistent with a growing body of evidence that suggests distinct features in the development of conduct problems in girls (Silverthorn & Frick, 1999) and specific differences in the presentation of adult female psychopathy (Cale & Lilienfeld, 2002; Salekin, 1998; Vitacco, Neumann, & Jackson, 2005; Vitale, Smith, Brinkley & Newman, 2002). It may be possible that whilst in adolescent boys, a deficit in affective empathy is a core deficit in the presentation of CU traits whilst in females there is either (a) a different relationship between affective empathy and CU traits (b) the same relationship manifest differently in girls.

When considering the possible reasons for this result, it is important to recognise that in girls, empathic and prosocial responses are socialised from early childhood. Within a community sample, it has been shown that adolescent girls show more empathy than adolescent boys (Mestre, Samper, Frias & Tur, 2009). Therefore it makes intuitive sense that when compared to males with conduct problems, females with conduct problems typically display more empathy (e.g., Gault & Sabini, 2000; Keenan & Hipwell, 2005). However, in this sample the presence of CU traits has no relationship to the level of affective empathy. This result could be due to the fact that other research which has reported an association between low affective empathy and high CU traits in girls (e.g. Pardini et al., 2003) differs on a number of factors from the current research. The Pardini study used a different measure of affective empathy from a subscale of the Interpersonal Reactivity Index (IRI). Although used widely in this type of research, there have been a number of criticisms raised about this tool as well (Beven, O'Brien-Malone, & Hall, 2004; Lawrence, Shaw, Baker, Baron-Cohen, & David, 2004) Firstly, research has suggested that the IRI measure of empathy is contaminated by sympathy which does not allow for the accurate measurement of empathy (Joliffe & Farrington, 2004). Secondly, the IRI's perspective taking scale has been criticised for not being a valid measure of cognitive empathy and finally, the IRI was developed and validated within a university population which might limit its applicability in measuring empathy in antisocial young people. The tool used to measure empathy in the current study, the Basic Empathy Scale, has been validated within a population of adolescents however has not been used extensively in the literature examining CU traits in adolescents. Interestingly, the current results fit with previous studies using the BES which have shown that conduct problems have a stronger negative relationship with cognitive empathy than affective empathy (Geng et al., 2012).

Interestingly, the Pardini study recruited a sample of adolescents residing in a juvenile prison whilst this study recruited a sample of adolescents with a history of offending who were engaged with a youth offending team but still living in the community. Given the low levels of adolescent female custodial sentences and the nature of crimes that would have to be committed for a significant

prison sentence, it may be that the sample in the Pardini study represented a particularly severe group of antisocial girls. In line with that, it might be that affective empathy is somewhat preserved in young girls who present with some conduct problems but are perhaps not at the most severe end of the spectrum. However, this would not fit with results from Stickle et al.(2012) who found that the most severely aggressive antisocial girls in their study reported a high level of affective empathy and CU traits. In general, empathy is a complex and nuanced construct and its study has been peppered with inconsistencies and apparent contradictions. Many studies that have examined cognitive and affective empathy separately in adolescents with conduct problems have found conflicting results (e.g. Lovett & Sheffield, 2007). However, our current research does fit with other studies that have used the BES in that females scored higher than males, in particular on affective empathy (Geng et al., 2012). Interestingly, although there was no relationship found between CU traits and affective empathy in girls, a relationship was detected between CU traits and cognitive empathy. This is unusual given that a wide range of literature based on the conceptual understanding of how empathy develops, has suggested that affective empathy is necessary first for a person to develop cognitive empathy.

Hoffman proposed an influential model of empathy where affective dimensions, developed through the observation of distress in others occurs before the child has the cognitive capacity to differentiate other from self (Hoffman, 1973; Hoffman, 1984). In other words, cognitive aspects of empathy emerge from affective aspects. This view essentially posits that an intuitive emotional understanding is necessary before the cognitive understanding of empathy can develop. Our results contradict this idea, as girls displayed normal levels of affective empathy, but lowered levels of cognitive empathy. However, as discussed by other studies, this could be explained by the fact that cognitive aspects of empathy may show a developmental lag. Adolescents with high CU traits may have a different motivational set making them less other oriented and more self-focused in terms of using their perspective taking abilities to manipulate others, rather than focus on others internal states (Brouns, Wied, de, Keijsers, Branje, Van Goozen & Meeus, .2013). It is evident that further

research is needed to pick apart the relationship between affective empathy and CU traits in adolescent females with conduct disorder.

4.6 The Role of Emotional Dysregulation

The current research sought to explain the relationship between CU traits and affective empathy in antisocial adolescent females by considering the role of emotional dysregulation. Previous research has suggested that CU traits and emotional dysregulation are negatively related, i.e. those antisocial young people who show high levels of CU traits do not show high levels of emotional dysregulation (e.g. Loetze et al., 2010). However, given the higher levels of emotional dysregulation overall in adolescent females compared to males (Silk Steinberg & Morris 2003) it has been suggested (e.g. Dadds et al., 2008) that the presence of emotional dysregulation in adolescent females may be related to their ability to demonstrate empathy. Marsee and Frick (2007) found that whilst emotional dysregulation was associated with reactive aggression in a sample of detained adolescent females, CU traits were associated with proactive aggression. This suggests that the two concepts are unrelated and in fact designate separate subgroups of adolescent females with conduct problems. However, as the authors note, most adolescents with conduct problems (male and female) exhibit both reactive and proactive aggression. In fact, it has been noted that those adolescents who display both types of aggression are more likely to display the emotional and cognitive correlates similar to the "proactive" kind.

In the current sample, although females with conduct problems reported higher levels of emotional dysregulation than their male counterparts and female controls, the level of emotional dysregulation did not, as predicted, impact on the relationship between CU traits and affective empathy. However, the results of our analysis suggest a small non-significant trend ($p = .07$). Given the sample size of the current study, the cell sizes for this analysis were small overall and notably so in some subgroups (e.g. n=3). It is therefore likely that there was not sufficient power to detect a significant effect presently. The implications of this non-significant trend must therefore be interpreted with caution. However, with

a larger sample size it may be possible to detect a significant effect of emotional dysregulation on the relationship between CU traits and affective empathy. If this trend was to be considered valid, it may in part be related to the concept that emotions are inherently regulating (Cole, Martin & Dennis 2004) however the process of regulating emotions varies according to the context. As we have discussed, females with conduct problems and CU traits report greater emotionality including affective empathy and emotional dysregulation. Although in this study there was no impact of high emotional dysregulation on the relationship between CU traits and affective empathy, this may have been related to the setting and the nature of the testing. It could be hypothesised that in certain situations (e.g. when emotionally aroused) emotional dysregulation may play a role in preventing these females from accessing their affective empathy skills. In other settings, when there is no emotional arousal and they are regulating their emotions well, their affective empathy skills may be more readily accessible. In other words, those who have difficulties regulating their emotions will show lower levels of affective empathy when in certain contexts. Further research potentially using vignettes, real life scenarios or mood induction may shed light on whether there is an impact of context on the relationship between affective empathy and CU traits in girls.

4.7 CU traits and Emotional Responding

When considering the previous literature which has used the lexical decision task to assess emotional processing and responding, there have been mixed results. In the most similar study to this, Loney et al.(2003) found in a sample of 60 adolescent boys with conduct problems that those who scored highly on measure of CU traits displayed impaired emotional facilitation to negative words on the lexical decision task. The boys in that study showed normal emotional facilitation to positive words (i.e. the deficit was specific to negative words). However, in a similar study by Frick et al. (2003), the same effect was not detected in a large community sample of girls and boys aged 12 years old on average. Within the adult literature, there is evidence to suggest that adult males with traits of psychopathy display the same deficit in emotional facilitation (e.g. Lorenz & Newman, 2002). However, Vitale (2011) found that

adult women with traits of psychopathy showed normal facilitation to emotional words (both positive and negative). The current study is the first to compare a clinical sample of adolescent girls and boys with conduct problems using the lexical decision task. The results of the current study are in line with evidence from the adult literature which suggests that although males show a deficit in processing emotional stimuli this does not generalize to females. This is an important finding it indicates that measuring CU traits can designate a subgroup of antisocial young people with characteristics similar to adults with psychopathy (e.g. Barry, Frick, DeShazo, McCoy, Ellis & Loney, 2000). The current research is also broadly in line with results from Loney et al. (2003) who found a deficit in processing emotional words using the LDT in adjucated adolescent males. However, the current research also differs from that study as within the current sample, there was no difference found between emotional facilitation to negative and positive words. It is unclear why this research has not resulted in the same finding given that both samples are comprised of participants with similar characteristics (e.g. average age, IQ and recruitment strategy). However, our results do show a trend toward a greater deficit in processing negative emotional stimuli as the NEU-NEG scores for the M-CP group were more impaired than the NEU-POS scores. It may be that the number of boys included in the current study (n = 24) did not give sufficient power to detect the significant effect found in the Loney study (n = 65). However, the Loney study also used a different measure of CU traits, the CU subscale of the APSD whilst the current study used the ICU which may have led to a different pattern of results. Despite this, it is important to note that the finding of impaired attentional facilitation to solely negative words using the lexical decision task has not been replicated consistently in the literature. For example, Frick (2003) found no relationship between CU traits and a deficit in emotional processing of negative words in a sample of non-referred adolescents. It may be that the deficit found in attentional processing is specific to those adolescents that present with both high CU traits and conduct problems. It is therefore it is difficult to draw a conclusion as to the how specific this deficit is to different types of emotional stimuli.

4.8 Where our sample fits in

This study was conducted in a sample of adolescent (aged 14-19) boys and girls. Given that the majority of the literature on CU traits and conduct problems has been conducted within a younger age group, it is important to consider how our group fits within that evidence base. In terms of considering the developmental trajectory of girls, numerous studies have attempted to develop a model of antisocial behaviour. It is obviously unclear due to the lack of longitudinal data whether the girls and boys in this sample fit into the child onset or adolescent onset pathways, or indeed if they fit into either. Given that a number of studies have concluded that risk factors are not static across childhood and adolescence (e.g. Farrington, 1995, 2003; Moffit, 1994, 1996) it is important to contextualise these findings within a developmental context. It may be that in adolescence, girls with conduct problems and high CU traits begin to look more like adult females with psychopathy which would explain their similar profile on the lexical decision task and the lack of differences between females with conduct problems and control females on self-reported affective empathy. Despite this, a number of studies have suggested that adolescent girls and women do not present in the same way (e.g. Brewer-Smyth, 2004; White, 2004, and Byrne and Trew, 2005).

Another factor to consider when interpreting the current results is that given we know that when compared to girls, boys' externalising behaviour is often more disruptive and overt and more likely to elicit attention (e.g. physical aggression/threats). This sample is however likely to be biased towards those girls that do commit more physical or outward aggression. This is a difficulty experienced across all studies of this nature, including ones that depend on DSM-IV criteria for conduct disorder. We know that girls are more likely to exhibit indirect, relational or social aggression (e.g. Crick & Grotpeter, 1995; Owens, 1996; Bjorqvist et al. 1992) therefore this sample may not be truly measuring all aspects of conduct problems in girls. The generalisability of these results may be limited to girls who do engage in more overt forms of aggression.

4.9 General Discussion

The results of this study indicate that overall, females with conduct problems who score highly on a measure of CU traits, also score highly on measures of affective empathy. This does make some inherent sense when we consider the results of the lexical decision task. On this task of emotional processing, females did not show a deficit in processing emotional stimuli, whereas boys did. Given that processing interpersonal emotional stimuli is central in the development of affective empathy, it appears as though within the current sample girls were able to utilise emotional information efficiently. In addition to this, when we compare their results to adolescent males, the boys showed diminished reactivity to emotional stimuli whereas girls did not. This heightened reactivity ties in with the finding that in this sample, girls showed high levels of emotional dysregulation or reactivity to emotion. However given our finding that girls did not show deficits in emotional empathy it may be that this reactivity to emotion is context specific. On the other hand, it could be that the deficit found in affective empathy in boys is more generally related to a deficit in processing emotional stimuli which has been shown on numerous occasions in the literature (e.g. Frick et al., 2003; Loney et al., 2003). This idea has been raised previously Anastassiou-Hadjicharalambous & Warden (2008) who found that boys with conduct disorder who were high in CU traits actually scored higher on measures of affective empathy than boys with conduct disorder who were low in CU traits. Further research is warranted into the specific role of emotional processing in adolescent males with conduct problems in order to tease apart whether the observed deficit in affective empathy is truly and empathic dysfunction alone or related to a more general deficit in emotional processing.

When considering our four primary variables: CU traits, affective empathy, emotional responding and emotional dysregulation within our sample of adolescent girls with conduct disorder, it is important to consider how these factors might fit together. It may be that responsiveness to emotional stimuli (as shown by this group on the lexical decision task) allows females to access emotional information readily and therefore report good levels of affective

empathy based on questions that involve emotional words and concepts (e.g. I often become sad when I watch sad things on TV). However, it could be that the higher levels of emotional dysregulation in this sample mean that when in periods of dysregulation, these girls cannot as readily access emotional stimuli leading to blunted affective empathy. These relationships appear to be unrelated to levels of CU traits (e.g. the presence of CU traits did not impact on the level of self-reported affective empathy or emotional responding). However, in boys, a different picture emerges of how these factors relate to each other. It is clear that higher levels of CU traits are related to lowered affective empathy and impaired responding to emotional words. Given that across this sample there was a low level of emotional dysregulation reported, it may be that the presence of emotional dysregulation may represent a reduced reactivity to emotional stimuli, or impairment in processing emotional stimuli as suggested by other studies (Loney et al., 2003; Marsh & Blair, 2008). Interestingly, the control female group behaved similarly to the conduct problem females, but there were some notable differences. Overall, the level of affective empathy was higher in this sample whilst the level of CU traits and emotional dysregulation was lower. It is clear that our sample of females with conduct problems have a distinct profile when compared to both males with conduct problems, but also when compared to a community dwelling control group. In other words, there is something distinct about the presentation of girls with conduct problems and CU traits. It may be that these females fit along a continuum of emotional processing deficits which has males with conduct problems and CU traits at one end and control females at the other.

4.10 Limitations

The clinical groups in this sample were recruited from youth offending teams in the greater London area and the South East of England. However, the control group of adolescent females was recruited primarily from two schools in inner west London. The demographic of this area is somewhat limited and therefore although there were no significant differences detected between groups on demographic factors, it is possible that this recruitment artefact may have impacted on the results. The age of the current sample (14-19) is important to

note when interpreting the current results. Over the last twenty years there have been an increasing number of studies seeking to better understand gender differences in conduct problems. However, the majority of these focus on a younger age group. It is difficult to compare the results of these studies with the current research given the huge developmental considerations that need to be taken into account. Both biological and socialisation factors inherent in adolescent research must be considered when fitting this study into the evidence base. Of course, the generalisability of the current results has to be considered given the cross-sectional design of the study. If there are to be any firm conclusions drawn from the preliminary results of this research, a more rigorous longitudinal study must be conducted. Finally, although the sample size in the current study was large enough to detect significant differences with sufficient power, it is a relatively small sample (n = 74) and given that the group of adolescent females (n =25) was our primary interest in the current study, it is possible that the size of the sample was not large enough to detect significant effects.

Another factor to consider when interpreting the results of the current study is that most of the available data used in the analysis was derived from self-report data. The limitations of utilising self-report data has been well documented in the literature (e.g. Cronbach, 1970; Fiske, 1980). One of primary limitations of using self-report questionnaires is the potential for recall failures or inaccuracies. However, a more serious difficulty can be the presence of social desirability effects, which occur when participants respond in a manner that presents them more positively and creates a systematic bias in responses (Bradburn & Sudman, 1979). This may be a larger concern in the present study given the nature of the sample being used. There is a wealth of research that suggests that the very nature of psychopathy in adults may lead participants to be more manipulative on self-report measures (Lynam, Whiteside & Jones, 1999). However, even with this said, a number of self-report measures have been shown to be useful in measuring psychopathic traits (e.g. Munoz & Frick 2007). In line with this, the self-report version of the ICU has been validated in samples of young people with conduct problems. Although some aspects of adolescent offending can be accurately measured by objective ratings, the nature

of CU traits means that although others can infer their presence, only the individual themselves is the direct observer (Lilienfeld & Fowler, 2006). Of course the current study could have been conducted using different or multiple measures of CU traits from independent raters (e.g. parent or teacher). In fact, some research has suggested poor correlations for CU ratings across methods (Lee, Vincent, Hart & Corrado, 2003). Future research could investigate the relationships found in the current study using multiple methods of measuring CU traits. On a similar note, empathy has been shown to be particularly susceptible to social desirability biases in self-report, therefore in future studies it may be useful to use multi-informant ratings of empathy.

Another issue to consider in the interpretation of this study is that the research sought to compare a group of adolescent females with conduct problems with a group of adolescent males with conduct problems and a control group of non-referred community dwelling adolescent females. Participants were recruited into the clinical groups from youth offending teams in the community. For the purposes of this study the term "conduct problems" was defined as having at least two or more contacts with the criminal justice system for which the young person was convicted or received a community order. Although detail was taken from the young person's records as to the offences they had committed, this was not included directly in the analysis. Due to the nature of the current study, namely the time and resource restraints on recruitment, the decision was made to include all offences into one "conduct problem" category. However, as mentioned, much of the literature does make a distinction between the type of offences committed when studying CU traits in adolescents (e.g. Marsee et al., Frick et al., 2003, Pardini et al., 2003; Stickle et al., 2012). Due to the size of the sample in the current study this was impossible however it is important to note that because of this, important effects may have been overlooked or missed out. Future research might seek to replicate this study with adolescent females but might also seek to delineate the most aggressive young people or those showing reactive v. proactive aggression. In addition to this, a measure of the severity of conduct problems (e.g. the strengths and difficulties questionnaire- SDQ) was not employed in the current study. This means that the comparability of the experimental groups is limited as there may have been variation in the severity

of conduct problems between groups. Overall, research has shown that females tend to score lower on measures of conduct problems such as the SDQ and therefore this may have confounded the present results. Despite this limitation, it is widely acknowledged that adolescent females typically display higher levels of relational or social aggression rather than physical aggression. Given that the girls in this sample were engaged with a youth offending team for violent antisocial acts, it is likely that they represent a group of adolescent females with higher levels of conduct problems. In future research, it will be useful to investigate the relative impact of the level of conduct problems upon the relationships reported here.

The use of a median split is commonplace within the field of CU traits and children, therefore the results of this study are easily comparable to similar research (e.g. Hawes & Dadds, 2007; Viding et al., 2012; Jones et al., 2010). However, there are inevitable drawbacks to utilising this methodology which are primarily concerned with a loss of power resulting from the transformation of a continuous variable to a categorical variable. Given the nonsignificant trend was identified in the current study (i.e. the impact of emotional dysregulation on the relationship between CU traits and affective empathy), it may be that performing a median split alongside a small sample size has led to a type II error and we have failed to detect a significant effect that is present in the data. When considering alternative methods, a regression based analysis would have removed this complication by leaving all continuous variables intact. However, the cut-off's used in this study are in line with other current research in the field and are therefore not arbitrary.

In the current study, participants with an IQ below 70 were not included. When the mean IQ for each subgroup was inspected, a significant difference was found between the conduct problem groups and the control female groups. There is a well-established link between low IQ and conduct problems (e.g. Moffitt, 1993) which has been replicated in this study. However, there was no significant difference in IQ found between the females with conduct problems and the males with conduct problems. This again is in line with the existing literature which would suggest that there may be some small gender differences

in IQ between adolescent females and males (with males scoring between 1-4 IQ points higher than females at age 16) however these differences are often negligible (Moffitt, 1993). It is possible that the difference in IQ may have impacted on the current participants' performance on the lexical decision task given its reliance on written stimuli. However, previous research has shown there to be no correlation between IQ and NEU-NEG or NEU-POS scores on the lexical decision task within a sample of adolescents with conduct problems (Loney et al., 2003). Despite this, it must be considered that there may have been an impact of IQ on task performance. However, given that males with conduct problems showed impaired performance on the LDT compared to both girls with conduct problems and control girls, it is unclear as to whether IQ would have been an influencing factor. Interestingly, a significant relationship between cognitive empathy and verbal IQ has been found in previous studies (Dadds et al., 2008). However, the same study found no association between verbal IQ and affective empathy. As there was a significant difference in IQ between control females and conduct problem females, it is impossible to rule out the possibility that the difference in cognitive empathy scores found in this study may in fact be confounded by IQ.

4.11 Implications for Future Research

Despite the limitations detailed, the current study adds to the body of literature investigating gender differences in adolescents with conduct problems and CU traits. It may be that CU traits represent a different construct in girls than in boys. However, it could also be that the current measures allow for biased responding because CU traits are a greater deviation away from girls' gender roles meaning that females are less likely to endorse items. However, there may also be true gender differences that develop through socialisation processes or inherent biological processes. Given these promising findings, future research may seek to directly examine the differences between males and females on measures of CU traits perhaps by using Multiple Indicator Multiple Cause modelling (see Bolt, Hare, Vitale & Newman, 2004). Through this approach, it may be possible to detect biased responding across boys and girls.

Further research into gender differences in the features of CU traits might investigate the role of gender in the cognitive correlates of CU traits (e.g. preference for novel and dangerous activities and a decreased sensitivity for punishment cues) given that there is some evidence that the emotional features may vary in adolescent females compared to males. In addition, future research might revisit the relationships detailed in this study but expand upon them by examining relational aggression specifically which is known to be more common in adolescent females. Future studies could also examine these relationships in samples of girls with varying levels of conduct problems (mild v. severe) or in samples of girls with different ethnic or geographical backgrounds (e.g. urban v. rural) to explore the impact of difference and culture on the presentation of CU traits.

In addition, as discussed previously, the girls with conduct problems in this sample are high in emotional dysregulation. It may be that future research could tap into this emotionality to assess whether it has an impact on how adolescent females respond to emotional stimuli and display affective empathy. In other words, although their ability to respond to emotions and demonstrate affective empathy was intact in this sample, it may be useful to develop a protocol which allows researchers to ask the same questions in the context of emotional arousal or dysregulation. This might involve the use of mood inductions, role plays or vignettes.

4.12 Clinical Implications

In terms of assessment implications, this research adds to the evidence base that clearly argues for assessments that separate CU traits from other antisocial behaviour factors. However, there are also a number of treatment implications. Early intervention parent training has been found to be highly effective in the treatment of conduct problems (e.g. Brestan & Eyberg, 1998). However, a number of studies have found that the presence of CU traits impacts on the effectiveness of intervention and actually predicts poorer outcomes (e.g. Hawes & Dadds, 2005). The current research adds to the evidence base on gender differences in the distinct correlates of CU traits. By focusing on correlates of

CU traits in this particular subgroup of young people with conduct problems, it may be possible to designate important targets of treatment that can focus on these risk factors before conduct problems become a significant issue. When thinking about what interventions may be useful in this population the Conduct Problems Prevention Research Group (2004) published a study summarising the two most important aspects of treatment. Firstly, interventions should be comprehensive by focusing on a number of different risk factors that may lead to behavioural problems and secondly, they should be individualised to the child's unique needs. Knowledge of gender differences in the specific characteristics of conduct problems and CU traits may facilitate this more readily and allow individualised approaches in girls (McMahon & Frick, 2005). For example, this study suggests that whilst girls demonstrate deficits in cognitive empathy, they actually report high levels of affective empathy.

Given that the girls in this study reported only a deficit in cognitive empathy, it is important to consider in more depth what this might mean in a clinical sense. The terms theory of mind, perspective-taking, mentalizing, and cognitive empathy are often used interchangeably and as discussed earlier, refer to the ability to infer and understand the thoughts, feelings, and actions of others. A study by Rankin, Kramer, and Miller (2005) detailed the individual components of each type of empathy. The cognitive components of empathy included attention, working memory, perspective-taking, theory of mind, abstract reasoning, spontaneous cognitive flexibility, reactive cognitive flexibility, and set shifting. It may be that interventions which aim to build on these skills through both education and practice may be useful in girls with conduct disorder and CU traits. By contrast, boys who in this study demonstrated a deficit in both cognitive and affective empathy may benefit from interventions that use empathy induction techniques (Jones et al., 2005). However, it is important to note that within the juvenile correction system, empathy training has been found to only have positive effects with some young people and not all (Joliffe & Farrington, 2004; Hanson 2003).

On a different note, taking into account the extreme emotionality of girls in this sample and the high level of emotional dysregulation found, it may be that

interventions for adolescent females focusing on emotional recognition and developing better emotion regulation skills (e.g. dialectical behaviour therapy) may be helpful (e.g. Stickle et al., 2012; Larson and Lochman 2003). If we are to hypothesise that emotional dysregulation affects the young person's ability to access their preserved levels of affective empathy in certain contexts, it might be that skills training around emotional dysregulation could be a useful way of helping females to continue to be able to access the preserved levels of affective empathy reported here. Hipwell and Loeber (2006) reviewed the evidence base and found that 'evidence of effectiveness of treatments for girls with disruptive and delinquent behaviours is extremely limited'. Overall, the current work helps to build a more comprehensive picture of the affective features of CU traits in both girls and boys so that individualised interventions can draw on strengths and avoid weaknesses.

4.13 Conclusions

Overall, the results of the current study suggest that there is a gender difference in how adolescents report and respond to emotions and emotional stimuli. In addition, there is a clear gender difference in the relationship between callous unemotional traits and a number of emotional variables (including affective empathy, emotional dysregulation and emotional responding). Adolescent males with conduct problems report higher levels of CU traits, lower levels of affective empathy and lower levels of emotional dysregulation when compared with similar females. In addition, these boys also show a deficit in how they process emotional words when compared to neutral words. However, adolescent girls with conduct disorder also responded differently to control girls by reporting higher levels of CU traits, higher levels of emotional dysregulation and lower levels of affective empathy. Interestingly, both female groups showed normal processing of emotional information. It appears as though this sample of adolescent girls with conduct disorder fits between the profiles of both males with conduct disorder but also control females. Adolescent girls with conduct problems indeed show a different pattern of emotionality in both directions. That is, although girls in the sample displayed more empathy than boys, they

also showed higher CU traits when compared to control females which taken together suggests difficulty in managing extremes of emotion.

Interestingly, the relationship between high CU traits and low affective empathy that has been reported in the literature was replicated in adolescent males but not in adolescent females. Females with high CU traits showed a deficit in cognitive empathy but not in affective empathy, whilst males showed deficits in both. The current research sought to consider emotional dysregulation as a factor which might influence the relationship between CU traits and affective empathy in girls, given the higher overall levels of emotional dysregulation in adolescent females when compared to adolescent males. Although a non-significant trend was detected, the small sample size limits the interpretation of this effect. The relationship between CU traits and emotional processing was also different in males compared to females. Males who scored highly on a measure of CU traits showed a deficit in processing emotional words compared to males who scored low on a measure of CU traits. In contrast, there was no impact of CU traits on females emotional processing; girls showed normal facilitation to both positive and negative words.

The research also examined the difference between adolescent females with conduct problems and adolescent female controls. Fewer differences were found between these groups than was predicted. More specifically, both groups of girls reported similar levels of affective empathy and facilitation to emotional words. Although the control group self-reported less emotional dysregulation and CU traits, it seems as though adolescent females who display CU traits and conduct problems are not as different from their peers as one would predict using male models of CU traits in adolescence. It could be considered that the sample of adolescent girls with conduct problems in this study may lie along a continuum of emotional processing deficits with conduct problems males at one end and female controls at the other.

The current results indicate that in the same way as which psychopathy in adulthood has been conceptualised differently in men and women, CU traits may be conceptually different in adolescent girls and boys. Our study both

contradicts and supports the current research base. It is clear that females in this study presented with different patterns of emotional responding than males. This is in line with research which suggests that not all models of CU traits and conduct problems in adolescence generalise from males to females. However, limitations of the study must be considered, and it is difficult to draw firm conclusions based on this research due to the small sample size, the use of only self-report data and its cross-sectional design. Further research is warranted into the mechanisms of how CU traits influence the development and presentation of empathy and emotional responding in adolescent females.

5. References

Albiero, P., Matricardi, G., Speltri, D. & Toso, D (2009). The assessment of empathy in adolescence: A contribution to the Italian validation of the "Basic empathy scale". Journal of Adolescence, 32(2), 398-408

Anastassiou-Hadjicharalambous, X. & Warden, D (2008). Cognitive and affective perspective-taking in conduct disordered children high and low on callous-unemotional traits. *Child and Adolescent Psychiatry and Mental Health*, 39(4), 503-517

Andershed, H., Gustafson, S.B., Kerr, M., & Stattin, H (2010). The usefulness of self-reported psychopathy like traits in the study of antisocial behaviour among non referred adolescents. *European Journal of Personality*, 16, 383–402.

Arnull, E., Archer, D., Eagle, S., Gammampila, A., Johnston, V., Miller, K. & Pitcher, J (2005) *Persistent Young Offenders – A Retrospective Study*. London: Youth Justice Board.

Barker, E.D. & Maughan, B (2009). Differentiating early-onset persistent versus childhood-limited conduct disorder. *The American Journal of Psychiatry*, 166(8), 900-908.

Barry, C.T., Frick, P.J., DeShazo, T.M., McCoy, M.G., Ellis, M. & Loney, B. R (2000). The importance of callous-unemotional traits for extending the concept of psychopathology to children. *Journal of Abnormal Psychology*, 109(2), 335-340.

Bevan, J. P., O'Brien-Malone, A. & Hall, G (2004). Using the Interpersonal Reactivity Index to assess empathy in violent offenders. International *Journal of Forensic Psychology*, 1(2), 33–41.

Björkqvist, K., Lagerspetz, K.M.J. & Kaukiaianen, A (1992a). The development of direct and indirect strategies in males and females. In K. Björkqvist and P. Niemelä (Eds.), *Of mice and women: Aspects of female aggression* (pp. 51-64). San Diego, CA: Academic Press.

Björkqvist, K., Lagerspetz, K.M.J., Kaukiaianen, A (1992b). Do girls manipulate and boys fight? Developmental trends in regard to direct and indirect aggression. *Aggressive Behavior*, 18, 117-127.

Blair, R.J.R (1995). A cognitive developmental approach to morality: Investigating the psychopath. *Cognition*, 57, 1–29

Blair, R.J.R (2003). A neurocognitive model of the psychopathic individual. In T.W. Robbins (Eds.), *Disorders of brain and mind 2* (pp. 400–420). Cambridge: Cambridge Press.

Blair, R.J.R., Budhani, S., Colledge, E. & Scott, S (2005). Deafness to fear in boys with psychopathic tendencies. *Journal of Child Psychology and Psychiatry*, 46(3), 327-336.

Blair, R.J (2005). Responding to the emotions of others: dissociating forms of empathy through the study of typical and psychiatric populations. Conscious Cognition, 14(4), 698-718

Blair, R. J. R., & Coles, M (2000). Expression recognition and behavioural problems in early adolescence. *Cognitive Development*, 15, 421–434.

Bolt, D.M., Hare, R. D., Vitale, J.E. & Newman, J. P (2004). A multigroup item response theory analysis of the psychopathy checklist-revised. *Psychological Assessment*, 16(2), 155-168

Bradburn, N. M. and Sudman, S (1979). *Improving Interview Method and Questionnaire Design*, San Francisco: Jossey-Bass Publishers.

Bradley, S (2000). *Affect regulation and the development of psychopathology*. New York: Guilford.

Brestan, E. V. & Eyberg, S. M (1998). Effective psychosocial treatments of conduct-disordered children and adolescents: 29 years, 82 studies and 5,272 kids. *Journal of Clinical Child Psychiatry*, 27(2), 180-9

Brewer-Smyth, K (2004) Women behind bars: Could neurobiological correlates of past physical and sexual abuse contribute to criminal behaviour? *Health Care for Women International*, 25(9) 835-852.

Brouns, B. H. J., Wied, M. A. de, Keijsers, L., Branje, S., Van Goozen, S. H. M. & Meeus, W. H. J (2013). Concurrent and prospective effects of psychopathic traits on affective empathy in a community sample of late adolescents. *Journal of Child Psychology and Psychiatry*, in press

Byrne, C. F. & Trew, K. J (2008). Pathways through crime: the development of crime and desistance in the accounts of men and women offenders. *Howard Journal of Criminal Justice*, 47(3), 238-258

Cale, E. M., & Lilienfeld, S. O (2002). Histrionic personality disorder and antisocial personality disorder: sex-differentiated manifestations of psychopathy? *Journal of Personality Disorders*, *16*(1), 52-72.

Calvo, M.G. & Lang, P.J (2004). Gaze patterns when looking at emotional pictures: Motivationally biased attention. *Motivation and Emotion*, 28, 221-243.

Caputo, A.A., Frick, P.J., & Brodsky, S.L (1999). Family violence and juvenile sex offending: Potential mediating roles of psychopathic traits and negative attitudes toward women. *Criminal Justice and Behavior*, 26, 338–356.

Cauffman, E., Piquero, A. R., Broidy, L., Espelage, D. L. & Mazarolle, P (2004) 'Heterogeneity in the Association Between Social-Emotional Adjustment Profiles and Deviant Behaviour among Male and Female Serious Juvenile Offenders', *International Journal of Offender Therapy and Comparative Criminology*, 48(2), 235–252.

Chesney- Lind, M. & Paramore, V.V (2001). Are girls getting more violent? Exploring juvenile robbery trends. *Journal of Contemporary Criminal Justice*, 17(2), 142-166.

Cleckley, H (1982). *The Mask of Sanity* (6th ed.). St. Louis, MO: C.V. Mosby.

Cohen, D. & Strayer, J (1996). Empathy in conduct-disordered and comparison youth. *Developmental Psychology*, 32, 988–998.

Cole, P. M., Martin, S. E. & Dennis, T. A (2004). Emotion regulation as a scientific construct: methodological challenges and directions for child development research. *Child Development*, 75(2), 317-333.

Colman, I., Murray, J., Abbott, R. A., Maughan, B., Kuh, D., Croudace, T. J. & Jones, P. B (2009). Outcomes of conduct problems in adolescence: 40 year follow up of national cohort. British Medical Journal, 338 (7688), 208-211

Cooke, D. J., Michie, C. & Hart, S. D (2006) Facets of clinical psychopathy: towards clearer measurement. In *Handbook of Psychopathic Personality Disorder* (Ed. C. Patrick), pp. 91-106. New York: Guilford.

Conduct Problems Prevention Research Group (2004). The effects of the Fast Track program on serious problem outcomes at the end of elementary school. *Journal of Clinical Child and Adolescent Psychology*, 33, 650-661.

Cote, S., Zoccolillo, M., Tremblay, R. E., Nagin, D. & Vitaro, F (2001). Predicting girls' conduct disorder in adolescence from childhood trajectories of disruptive behaviours. *Journal of the American Academy of Child and Adolescent Psychiatry*, 40, 678 – 684.

Crick, N. R., & Zahn-Waxler, C (2003). The development of psychopathology in females and males: Current progress and future challenges. *Development and Psychopathology*, 15, 719–742.

Crick, N. R. & Grotpeter, J. K (1995). Relational aggression, gender, and social psychological adjustment. *Child Development*, 66, 710–722.

Cronbach, L. J (1970). *Essentials of psychological testing* (3rd ed.). New York: Harper & Row

Cruise, K.R., Colwell, L.H., Lyons, P.M. & Baker, M.D (2003). Prototypical analysis of adolescent psychopath: investigating the juvenile justice perspective. *Behavioural Sciences and the Law*, 21(6), 829-846.

D'Ambrosio F., Olivier M., Didon D. & Besche C (2009). The basic empathy scale: a French validation of a measure of empathy in youth. *Personality and Individual Diffferences*, 46, 160–165.

Dadds, M. R., Fraser, J., Frost, A. & Hawes, D (2005). Disentangling the underlying dimensions of psychopathy and conduct problems in childhood: A community study. *Journal of Consulting and Clinical Psychology*, 73, 400–410.

Dadds, M.R., Whiting, C. & Hawes, D (2006a). Associations among cruelty to animals, family conflict, and psychopathic traits in childhood. *Journal of Interpersonal Violence*, 21, 411–429.

Dadds, M.R., Perry, Y., Hawes, D. J., Merz, S., Riddell, A.C., Haines, D.J., Solak, E. & Abeygunawardane, A. I (2006b). Attention to the eyes and

fear-recognition deficits in child psychopathy. *British Journal of Psychiatry*, 189, 280-281.

Dadds, M. R., El Masry, Y., Wimalaweera, S. & Guastella, A.J (2008). Reduced eye gaze explains "fear blindness" in childhood psychopathic traits. *Journal of the American Academy of Child and Adolescent Psychiatry*, 47(4), 455-463.

Dadds M. R., Hawes D., Frost A., Vassallo, S., Bunn, P. Hunter, K. & Sabine, M (2009). Learning to "talk the talk" : the relationship of psychopathic traits to deficits in empathy across childhood. *Journal of Child Psychology and Psychiatry*, 50, 599-606.

Dandreaux, D. M. & Frick, P. J. (2009). Developmental pathways to conduct problems: A further test of the childhood and adolescent-onset distinction. *Journal of Abnormal Child Psychology*, 37, 375 – 385.

Davis, M. H. & Franzoi, S. L (1991). Stability and change in adolescent self-consciousness and empathy. *Journal of Research in Personality*, 25, 70-87.

Davies, P.T. & Windle, M. (1997). Gender-specific pathways between maternal depressive symptoms, family discord and adolescent adjustment. *Developmental Psychology*, 33, 657-688

Dodge, K. A., Price, J. M., Bachorowski, J., & Newman, J. P (1990). Hostile attributional biases in severely aggressive adolescents. *Journal of Abnormal Psychology, 99*, 385-392.

Dodge, K. A. & Pettit, G. S (2003). A biopsychosocial model of the development of chronic conduct problems in adolescence. *Developmental Psychology*, 39, 349–371.

Edens, J. F., Campbell, J. S. & Weir, J. M (2007). Youth psychopathy and criminal recidivism: A meta-analysis of the psychopathy checklist measures. *Law and Human Behaviour*, 31, 53-75.

Eisenberg, N., Spinard, T.L. & Smith, C.L (2004). Emotion-related regulation: It's conceptualisation, relations to social functioning and socialisation. In P. Philpot & & S. Feldman (Eds.), *The Regulation of Emotion* (p277-306). Mahah, New Jersey: Erlbaum.

Essau, C. A., Sasagawa, S. & Frick, P. J (2006). Callous-unemotional traits in a community sample of adolescents. *Assessment*, 13(4), 454-469.

Falkenbach, D. M., Poythress, N. G. & Heide, K. M (2003). Psychopathic features in a juvenile diversion population: Reliability and validity of two self-report measures. *Behavioural Science and Law*, 21, 787–806.

Farrington, D. P (1995). Development of Offending and Antisocial Behaviour From Childhood: Key Findings From the Cambridge Study in Delinquent Development. *Journal of Child Psychology*, 360(6), 929-964

Farrington D. P (2003) Key results from the first 40 years of the Cambridge Study in Delinquent Development. In Thornberry T.P., Krohn M.D (Eds.) *Taking Stock of Delinquency: An Overview of Findings from Contemporary Longitudinal Studies*. New York: Kluwer/Plenum pp. 137–183.

Fergusson, D. M., Horwood, L. J. & Ridder, E. M (2005). Show me the child at seven: The consequences of conduct problems in childhood for psychosocial functioning in adulthood. *The Journal of Child Psychology and Psychiatry*, 46, 837–849.

Field, A. P (2009). Discovering Statistics using SPSS (3rd Ed). Los Angeles: Sage

Fiske, S. T (1980), "Attention and Weight in Person Perception: The Impact of Negative and Extreme Behavior," *Journal of Personality and Social Psychology*, 38 (6), 889-906.

Flight, J. I. & Forth, A. E (2007). Instrumentally violent youths: The roles of psychopathic traits, empathy, and attachment. *Criminal Justice and Behavior*, 34, 739-751.

Forouzan, E. & Cooke, D. J (2005). Figuring out La Femme Fatale: Conceptual and Assessment Issues Concerning Psychopathy in Females. *Behavioural Sciences and the Law*, 23, 765-778.

Frick, P. J (1994). Family dysfunction and the disruptive behavior disorders: A review of recent empirical findings. In T. H. Ollendick & R. J. Prinz (Eds.), *Advances in Clinical Child Psychology* (*Vol. 16, pp. 203-226),* New York: Plenum.

Frick, P. J (1995). Callous-unemotional traits and conduct problems: A two-factor model of psychopathy in children. *Issues in Criminological and Legal Psychology*, 24, 47-51.

Frick, P. J (1998). Callous-unemotional traits and conduct problems: A two-factor model of psychopathy in children. In D. J. Cooke, A. Forth, & R. D. Hare (Eds.), *Psychopathy: Theory, Research, and Implications for Society*, (pp. 161-187), Dordresch, Netherlands: Kluwer Press.

Frick, P. J. & Loney, B. R (1999a). Outcomes of children and adolescents with conduct disorder and oppositional defiant disorder. In H.C. Quay & A. Hogan (Eds.), *Handbook of disruptive Behaviour Disorders*, (pp. 507-524), New York: Plenum.

Frick, P. J. & Ellis, M. L (1999b). Callous-unemotional traits and subtypes of conduct disorder. *Clinical Child and Family Psychology Review*, 2, 149–168.

Frick, P. J., Bodin, S. D. & Barry, C. T (2000). Psychopathic traits and conduct problems in community and clinic-referred samples of children: Further development of the Psychopathy Screening Device. *Psychological Assessment*, 12, 382-393.

Frick, P. J., Cornell, A. H., Barry, C. T., Bodin, S. D. & Dane, H.A (2003a). Callous-unemotional traits and conduct problems in the prediction of conduct problem severity, aggression, and self-report of delinquency. *Journal of Abnormal Child Psychology*, 31, 457-470.

Frick, P. J., Cornell, A. H., Bodin, S. D., Dane, H. A., Barry, C. T. & Loney, B. R (2003b). Callous unemotional traits and developmental pathways to severe conduct problems. *Developmental Psychology*, 39, 246-260.

Frick, P. J. & Sheffield Morris, A. S (2004a). Temperamental and developmental pathways to severe conduct problems. *Journal of Clinical Child and Adolescent Psychology*, 33, 54-68.

Frick, P. J (2004b). *Inventory of callous–unemotional traits*. Unpublished rating scale, University of New Orleans, New Orleans, LA.

Frick, P. J. & Dickens, C (2006a). Current perspectives on conduct disorder. *Current Psychiatry Reports*, 8(1), 59-72.

Frick, P. J (2006b). Developmental pathways to conduct disorder. *Child and Adolescent Psychiatric Clinics of North Americ*a, 15, 311-332.

Frick, P. J. & White, S. F (2008). The importance of callous-unemotional traits for developmental models of aggressive and antisocial behaviour. *Journal of Child Psychology and Psychiatry*, 49(4), 359-375.

Gault B.A. & Sabini J (2000). The roles of empathy, anger, and gender in predicting attitudes toward punitive, reparative, and preventative public policies. *Cognition and Emotion*, 14, 495–520.

Geng Y, Xia D & Qin, B (2012). The Basic Empathy Scale: a Chinese validation of a measure of empathy in adolescents. *Child Psychiatry and Human Development*, 43 (4), 499-510.

Goldstein, H., & Higgins-D'Alessandro, A (2001). Empathy and attachment in relation to violent vs. non- violent offense history among jail inmates. *Journal of Offender Rehabilitation*, 32(4), 31-53.

Gretton, H. M., Hare, R. D. & Catchpole, R. E (2004). Psychopathy and offending from adolescence to adulthood: A 10-year follow up. *Journal of Consulting and Clinical Psychology*, 72, 636–645.

Griffin, K. W., Botvin, G.J., Schieier, L.M., Diaz, T. & Miller, N.L. (2000). Parenting practices as predictors of substance use, delinquency and aggression among urban minority youth: Moderating effects of family structure and gender. Psychology of Addictive Behaviour, 14(2), 174-184

Hanson, R. K (2003). Empathy deficits of sexual offenders: A conceptual model. *Journal of Sexual Aggression, 9,* 13-23.

Hare, R. D (1993). *Without Conscience: The Disturbing World of the Psychopaths Among Us*. New York: Simon & Schuster.

Hare, R. D (1999). Psychopathy as a risk factor for violence. *Psychiatric Quarterly*, 70(3), 181-197.

Hare, R. D., Hart, S. D., & Harpur, T. J (1991). Psychopathy and the DSM-IV criteria for antisocial personality disorder. *Journal of Abnormal Psychology*, 100(3), 391-398.

Hawes, D. J. & Dadds, M. R (2005). The treatment of conduct problems in children with callous/unemotional traits. *Journal of Consulting and Clinical Psychology*, 73,737 -741.

Hemphill, J. F (2007). The Hare Psychopathy Checklist and recidivism: Methodological issues and critical evaluation of empirical evidence. In H. Hervé & J. C. Yuille (Eds.), *The psychopath: Theory, research, and practice* (pp. 141-170). Mahwah, NJ: Lawrence Erlbaum and Associates.

Hinshaw, S. P., Lahey, B. B. & Hart, E. L (1993). Issues of taxonomy and co-morbidity in the development of conduct disorder. *Development and Psychopathology*, 5, 31-49.

Hipwell, A. E. & Loeber, R (2006). Do We Know Which Interventions are Effective for Disruptive and Delinquent Girls? *Clinical Child and Family Psychology Review*, 9(3/4), 221-255.

Hoffman, M. L (1973). Empathy, Role-Taking, Guilt, and Development of Altruistic Motives.

Hoffman, M. L (1976). Empathy, Role Taking, Guilt, and Development of Altruistic Motives. *Moral development and behavior: theory, research, and social issues*, 124.

Hoffman, M. L (1984). Interaction of affect and cognition in empathy. *Emotions, Cognition, and Behavior*, 103-131.

Jackson, C (2002) ‘‘Laddishness’ as a Self-Worth Protection Strategy’, *Gender and Education*, 14(1), 37–51.

Joliffe, D. & Farrington, D. P (2004). Empathy and offending. A systematic review and meta-analysis. *Aggression and Violent Behavior*, 9, 441 — 476.

Javdani, S., Sadeh, N. & Verona, E (2011). Suicidality as a Function of Impulsivity, Callous/Unemotional Traits, and Depressive Symptoms in Youth. *Journal of Abnormal Psychology*, 120, 400-413

Joliffe, D. & Farrington, D. P (2006). Development and validation of the basic empathy scale. *Journal of Adolescence*, 29(4), 589-611

Joliffe, D. & Farrington, D. P (2011). Is low empathy related to bullying after controlling for individual and social background variables? *Journal of Adolescence*, 34(1), 59-71

Jones, A. P., Happé, F., Gilbert, F., Burnett, S. & Viding, E (2010). Feeling, caring, knowing: different types of empathy deficit in boys with psychopathic tendencies and autism spectrum disorder. *Journal of Child Psychology & Psychiatry*, 51, 1188-1197.

Keenan, K. & Shaw, D. S (1997). Developmental and social influences on young girls' behavioural and emotional problems. *Psychological Bulletin*, 121, 97-113.

Keenan, K. & Hipwell, A.E (2005). Preadolescent clues to understanding depression in girls. *Clinial Child and Family Psychology Review,8*, 89---105.

Keenan, K. & Coyne, C. & Lahey, B. B (2008). Should relational aggression be included in DSM-V? *The Journal of the American Academy of Child and Adolescent Psychiatry*, 47(1), 86-93.

Keith, T., Lindskog, C. & Smith, J (2004). Test review of the Wechsler Abbreviated Scale of Intelligence. From B. S. Plake & J. C. Impara (Eds), *The fourteenth mental measurements yearbook* [Electronic version]. Retrieved May 3, 2006, from the Buros Institute's *Test Reviews Online* website: http://www.unl.edu/buros.

Kim-Cohen, J., Arsenault, L., Caspi, A., Tomas, M. P., Taylor, A. & Moffitt, T. E (2005). Validity of DSM-IV conduct disorder in 4½- to 5-year-old children. *American Journal of Psychiatry*, 162, 1108–1117.

Kimonis, E. R., Frick, P. J., Fazekas, H. & Loney, B (2006a). Psychopathy, aggression, and the processing of emotional stimuli in non-referred girls and boys. *Behavioural Sciences and the Law*, 24, 21-37.

Kimonis, E. R., Frick, P. J., Boris, N. W., Smuke, A. T., Cornell, A. H., Farrell, J. M. & Zeanah, C. H (2006b). Callous-unemotional features,behavioral inhibition, and parenting: Independent predictors of aggression in a high-risk preschool sample*Journal of Child and Family Studies*, 15, 745-756.

Kimonis, E. R., Frick, P. J., Munoz, L. C., & Aucoin, K. J (2007). Can a laboratory measure of emotional processing enhance the statistical prediction of aggression and delinquency in detained adolescents with callous-unemotional traits? *Journal of Abnormal Child Psychology*, 35, 773–785.

Kimonis, E. R., Frick, P. J., Munoz, L. C. & Aucoin, K. J (2008a). Callous-unemotional traits and the emotional processing of distress cues in detained boys: Testing the moderating role of aggression, exposure to community violence, and histories of abuse. *Development and Psychopathology*, 20, 569-589.

Kimonis, E. R., Frick, P. J., Skeem, J. L., Marsee, M. A., Cruise, K., Munoz, L. C., Aucoin, A. J. & Morris, A. S (2008b). Assessing callous-

unemotional traits in adolescent offenders: Validation of the inventory of callous-unemotional traits. *International Journal of Law and Psychiatry, 31,* 241-252.

Kimonis, E. R. & Frick, P. J (2010). Oppositional defiant disorder and conduct disorder grown-up. *Journal of Developmental and Behavioral Pediatrics. Special Issue on Developmental and Behavioral Disorders Grown-Up,* 31(3), 244-254.

Kochanska, G (1995). Children' temperament, mothers' discipline and security of attachment: Multiple pathways to emerging internalisation. *Child Development,* 66, 597-615

Kroneman, L. M., Hipwell, A. E., Loeber, R., Koot, H. M. & Pardini, D. A (2011). Contextual risk factors as predictors of disruptive behaviour disorder trajectories in girls: The moderating effect of callous-unemotional features. *Journal of Child Psychology and Psychiatry*, 52(2), 167-175.

Kruh, I. P., Frick, P. J., & Clements, C. B (2005). Historical and personality correlates to the violence patterns of juveniles tried as adults. *Criminal Justice and Behaviour,* 32, 69-96.

Kucera, H., & Francis, W. N (1967). *Computational analysis of present-day American English.* Providence, RI: Brown University Press

Lahey, B.B., Van Hulle, C.A., Waldman, I.D., Rodgers, J.L., D'Onofrio, B.M., Pedlow, S., Rathouz, P.J. & Keenan, K. (2006) Testing descriptive hypotheses regarding sex differences in the development of conduct problems and delinquency. *Journal of Abnormal Child Psychology,* 34, 737–755.

Lahey, B. B., & Loeber, R (1994). Framework for a developmental model of oppositional defiant disorder and conduct disorder. In D.K. Routh (Ed.). *Disruptive behavior disorders in childhood*. New York: Plenum.

Larson, R., Csikszentmihalyi, M. & Graef, R (1980). Mood variability and the psychosocial adjustment of adolescents. *Journal of Youth and Adolescence*, 9:469–490.

Larson, J., & Lochman, J. E (2002). *Helping schoolchildren cope with anger: A cognitive behavioral intervention*. New York: Guilford Press

Lawrence, E. J., Shaw, P., Baker, D., Baron-Cohen, S. & David, A. S (2004). Measuring empathy: reliability and validity of the empathy quotient. *Psychological Medicine*, 34, 911-924.

Lee, Z., Vincent, G. M., Hart, S. D., & Corrado, R. R (2003). The validity of the Antisocial Process Screening Device as a self-report measure of psychopathy in adolescent offenders. Juvenile psychopathy. *Behavioral Sciences and the Law*, 21, 26-38.

Lennon, R. & Eisenberg, N (1987). Gender and age differences in empathy and sympathy. In N. Eisenberg, J. Strayer (Eds.), Empathy and it's Development (pp 195-217) Cambridge, UK: Cambridge University Press.

Lewis, D.O., Yeager, C.A., Cobham-Portorreal, C.S. & Klein, N. (1991). A follow-up of female delinquents: Maternal contributions to the perpetuation of deviance. *Journal of the American Academy of Child and Adolescent Psychiatry*, 30, 197-201

Lilienfeld, S. O., & Fowler, K. A (2006). The self-report assessment of psychopathy: Promises, problems, and solutions. In C. Patrick (Ed.), *Handbook of psychopathy* (pp. 107-132). New York: Guilford Books

Linick, J.L (2012). Emotion Recognition, Emotion Regulation, and Callous-Unemotional Traits in Incarcerated Male Youth. Unpublished manuscript,Columbia University, NY. http://academiccommons.columbia.edu/catalog/ac:143853

Loeber, R (1982). The Stability of antisocial and delinquent child behaviour: A review. *Child Development*, 53(6), 1431-1446

Loeber, R. & Farrington, D. P (2000) Young children who commit crime: Epidemiology, developmental origins, risk factors, early interventions, and policy implications. *Development and Psychopathology*, 12**,** 737-767.

Loney, B. R., Frick, P. J., Ellis, M. L., & McCoy, M. G (1998). Intelligence, callous unemotional traits and antisocial behaviour. *Journal of Psychopathology and Behavioural Assessmen*t, 20, 231–247.

Loney, B. R., Frick, P. J., Clements, C. B., Ellis, M. L. & Kerlin, K (2003). Callous-unemotional trains, impulsivity and emotional processing in adolescents with antisocial behaviour problems. *Journal of Clinical Child and Adolescent Psychology*, 32(1), 66-80.

Loeber, R., Pardini, D., Homish, D. L., Wei, E. H., Crawford, A. M., Farrington, D. P., Stouthamer-Loeber, M., Creemers, J., Koehler, S.A. & Rosenfeld, R (2005). The prediction of violence and homicide in young men. *Journal of Consulting and Clinical Psychology*, 73, 1074-1088.

Loney, B. R., Butler, M. A., Lima, E. N., Counts, C. A., & Eckel, L. A (2006). The relation between salivary cortisol, callous-unemotional traits, and conduct problems in an adolescent non-referred sample. *Journal of Child Psychology and Psychiatry*, 47, 30–36.

Lorenz, A. R., & Newman, J. P (2002). Utilization of emotion cues in male and female offenders with antisocial personality disorder: Results from a lexical decision task. *Journal of Abnormal Psychology*, 111, 513–516.

Lotze, G. M., Ravindran, N. & Myers, B. J (2010). Moral emotions, emotional self-regulation, callous-unemotional traits and problem behaviour in children of incarcerated mothers. *Journal of Child and Family Studies*, 19, 702-713.

Louth S. M., Williamson, S., Alpert, M., Pouget, E. R., Hare, R. D (1998) Acoustic distinctions in the speech of male psychopaths. *Journal of Psycholinguist Research*, 27, 375–84.

Lovett, B. J & Sheffield, R. A (2007). Affective empathy deficits in aggressive children and adolescents: a critical review. *Clinical Psychology Review*, 27(1), 1-13

Lykken, D (1995). *The antisocial personalities*. Hillsdale, NJ: Erlbaum.

Lynam, D. R (1996). The early identification of chronic offenders: Who is the fledgling psychopath? *Psychological Bulletin*, 120, 209-234.

Lynam, D. R., Whiteside, S. & Jones, S (1999). Self-reported psychopathy: A validation study. *Journal of Personality Assessment*, 73, 110-132.

Lynskey, M. T. & Fergusson, D. M (1995**)**. Childhood conduct problems, attention deficit behaviors, and adolescent alcohol, tobacco, and illicit drug use. *Journal of Abnormal Child Psychology*, 23, 281– 302.

Marsee**,** M. A., & Frick, P. J (2007).Exploring the cognitive and emotional correlates to proactive and reactive aggression in a sample of detained girls. *Journal of Abnormal Child Psychology, 35,* 969-981.

Marsh, A. A. & Blair R. J. R (2008). Deficits in facial affect recognition among antisocial populations: A meta-analysis. *Neuroscience & Biobehavioral Reviews*, 32, 454-65.

Maughan, B., Rowe, R., Messer, J., Goodman, R. & Melzer, H. (2004). Conduct disorder and oppositional defiant disorder in a national sample: developmental epidemiology. *The Journal of Child Psychology and Psychiatry*, 35, 609-621

McMahon, R. J., & Frick, P. J (2005). Evidence-based assessment of conduct problems in children and adolescents. Journal *of Clinical Child and Adolescent Psychology*, 34, 477–505

Mestre, M. V., Samper, P., Frias, M. D., & Tur, A. M (2009). Are women more empathic than men? A longitudinal study in adolescence. *The Spanish Journal of Psychology, 12,* 76-83

Mezzich, A.C., Tarter, R.E., Giancola, P. R. & Kirisci, L (2001). The dysregulation inventory: A new scale to assess the risk for substance use disorder. *Journal of Child and Adolescent Substance Abuse,* 10, 35-43

Moffitt, T. E (1993). Adolescent-limited and life-persistent antisocial behaviour: A developmental taxonomy. *Psychological Review*, 100, 674-701.

Moffitt, T. E., Silva, P., Lynam, D. & Henry, B (1994). Self-reported delinquency at age 18 New Zealand's Dunedin Multidisciplinary Health and Development Study. In Josine Junger-Tas and Gert-Jan Terlouw (Eds.), *The International Self-Report Delinquency Project*. Amsterdam: Kugler.

Moffitt, T. E., Caspi, A., Dickson, N., Silva, P. & Stanton, W (1996) Childhood-onset versus adolescent-onset antisocial conduct problems in males: Natural history from ages 3 to 18 years. Development and Psychopathology, 8(2), 399-424

Moffitt, T. E. & Caspi, A (2001). Childhood predictors differentiate life-course persistent and adolescence-limited antisocial pathways among males and females. *Development and Psychopathology*, 13(2), 355-375.

Moffitt, T. E., Caspi, A., Harrington, H. & Milne, B (2002). Males on the life-course persistent and adolescence-limited antisocial pathways. Follow-up at age 26. *Development and Psychopathology*, 8, 399-424.

Moffitt, T. E (2003). Life-course persistent and adolescence- limited antisocial behaviour: A 10 year research review. In B. B. Lahey, T. E. Moffit, & A. Caspi (Eds.), *Causes of conduct disorder and juvenile delinquency (*49-75). New York: The Guilford Press.

Munoz, L. C. & Frick, P. J (2007). The reliability, stability, and predictive utility of the self-report version of the Antisocial Process Screening Device. *Scandinavian Journal of Psychology*, 48, 299-312.

Muñoz L., Qualter P. & Padgett, G. (2010). Empathy and bullying : exploring the influence of callous-unemotional traits. *Child Psychiatry and Human Development*, 42(2), 183-196.

Munoz, L. C. & Frick, P. J (2012). Callous-unemotional traits and their implications for understanding and treating aggressive and violent youths. *Criminal Justice and Behaviour*, 39(6), 794-813.

Morrisset, C. E., Barnard, K. E. & Booth, C. L (1995). Toddler's language development: Sex differences within social risk. *Developmental Psychology*, 31, 851- 865.

Neumann, C. S., Hare, R. D., & Newman, J. P (2007). The super-ordinate nature of the Psychopathy Checklist-Revised. *Journal of Personality Disorders*, 21, 102-107.

Obradović, J., Pardini, D., Long, J. D. & Loeber, R (2007). Measuring interpersonal callousness in boys from childhood to adolescence: An examination of longitudinal invariance and temporal stability. *Journal of Clinical Child and Adolescent Psychology*, 36, 276-292.

Owens, L. D (1996). Sticks and stones and sugar and spice: Girls' and boys' aggression in schools. *Australian Journal of Guidance and Counseling*, 6, 45-55.

Pardini, D. A., Lochman, J. E., & Frick, P. J (2003). Callous/unemotional traits and social-cognitive processes in adjudicated youths. *Journal of the American Academy of Child and Adolescent Psychiatry*, 42, 364–371.

Pardini, D. A (2006a). The callous unemotional pathway to severe violent delinquency. *Aggressive Behaviour*, 32, 590-598.

Pardini, D. A., Obradovic´, J. & Loeber, R (2006b). Interpersonal callousness, hyperactivity/impulsivity, inattention, and conduct problems as precursors to delinquency persistence in boys: A comparison of three grade-based cohorts. *Journal of Clinical Child and Adolescent Psychology*, 35, 46–59.

Pardini, D. A. & Loeber, R (2008). Interpersonal callousness trajectories across adolescence early social influences and adult outcomes. *Criminal Justice and Behaviour*, 35(2), 173-196.

Pardini, D. A., & Fite, P. J (2010). Symptoms of conduct disorder, oppositional defiant disorder, attention-deficit/hyperactivity disorder, and callous-unemotional traits as unique predictors of psychosocial maladjustment in boys: Advancing evidence base for DSM-V. *Journal of the American Academy of Child and Adolescent Psychiatry*, 49(11), 1134- 1144.

Pardini, D.A., Stepp,S., Hipwell, A., Stouthamer-Loeber, M. & Loeber, R (2012). The clinical utility of the proposed DSM-V callous unemotional

subtype of conduct disorder in girls. *The Journal of the American Academy of Child and Adolescent Psychiatry*, 51(1), 62-73

Patrick, C. J (2007). Getting to the heart of psychopathy. In H. Herve & J. C. Yuille (Eds.), *The psychopath: Theory, research, and social implications* (pp. 207–252). Hillsdale, NJ: Erlbaum.

Patrick, C. J (1994). Emotion and Psychopathy: Startling new insights. *Psychophysiology*, 31, 319-330.

Pepler, D. J., & Craig, W. M (2005). Aggressive girls on troubled trajectories: A developmental perspective. In D. J. Pepler, K. C. Madsen, C. Webster, & K. S. Levene (Eds.), *The Development and Treatment of Girlhood Aggression* (pp. 3-28). Mahwah, New Jersey: Lawrence Erlbaum Associates Publishers.

Rankin, K. P., Kramer, J. H. & Miller, B. L (2005). Patterns of cognitive and emotional empathy in frontotemporal lobar degeneration. *Cognitive and Behavioural Neurology*, 18(1), 28-36

Roose, A., Bijttbier, P., Decoene, S., Claes, L., & Frick, P.J (2010). Assessing the affective features of psychopathy in adolescence: A further validation of the Inventory of Callous and Unemotional Traits. *Assessment, 17,* 44-57.

Rudolph, K. D (2002) Gender differences in emotional responses to interpersonal stress during adolescence. *Journal of Adolescent Health*, 30, 3–13

Russo, M. F. & Beidel, D. C. (1994). Comorbidity of childhood anxiety and externalizing disorders: Prevalence, associated characteristics, and validation issues. *Clinical Psychology Review*, 14(3), 199-221.

Rusting, C. L (1998). Personality, mood and cognitive processing of emotional information: three conceptual frameworks. *Psychological Bulletin*, 124(2), 165-196

Salekin, R. T., Rogers, R. & Sewell, K. W (1996). A review and meta-analysis of the psychopathy checklist and the psychopathy checklist-revised: Predicted validity of dangerousness. *Clinical Psychology: Science and practice*, 3, 203-215.

Salekin, R.T (2008). Psychopathy and recidivism from midadolescence to young adulthood: Cumulating legal problems and limiting life opportunities. *Journal of Abnormal Psychology*, 117, 386–395

Serin, R. C (1993). Diagnosis of psychopathology with and without an interview. *Journal of Clinical Psychology*, 49, 367-372

Silk, J. S., Steinberg, L. & Morris, A. S (2003). Adolescent's emotional regulation in daily life: Links to depressive symptoms and problem behaviour. *Child Development*, 74(6), 1869-1880.

Silverthorn, P., & Frick, P. J (1999). Developmental pathways to antisocial behavior: The delayed-onset pathway in girls. *Development and Psychopathology*, 11, 101–126.

Silverthorn, P., Frick, P.J. & Reynolds, R (2001). Timing of onset and correlates of severe conduct problems in adjucated boys and girls. *Journal of Psychopathology and Behavioural Assessment*, 23(3), 171-181.

Smith, D. J. & McAra, L (2004) *Gender and Youth Offending, The Edinburgh Study of Youth Transitions and Crime, Issue 2.* Edinburgh: Centre for Law and Society, The University of Edinburgh.

Sourander, A., Multimaki, P., Nikolakaros, G., Haavisto, A., Ristkari, T., Helenius, H., Parkkola, K., Piha, J., Tamminen, T., Moilanen, I.

Kumpulainen, K. & Almqvist, T (2005) Childhood predictors of psychiatric disorders among boys: a prospective community-based follow-up study from age 8 years to early adulthood. *The Journal of the American Academy of Child and Adolescent Psychiatry*, 44, 756-67.

Spear, L (2000). Neurobehavioral changes in adolescence. *Psychological Science*, *9*(4), 111-114.

The Crime and Disorder Act (1998). HMSO.

Steffensmeier, D., Schwartz, J., Zhong, H. & Ackerman, J (2005). An assessment of recent trends in girls' violence using diverse longitudinal sources. Is the gender gap closing? *Criminology* 43, 355–405.

Steinberg, L. & Avenevoli, S (2000). The role of context in the development of psychopathology: A conceptual framework and some speculative propositions. *Child Development*, 71, 66-74.

Stevens, D., Charman, T. & Blair, R. J. R **(**2001**)** Recognition of emotion in facial expressions and vocal tones in children with psychopathic tendencies. *Journal of Genetic Psychology*, 162, 201 -211.

Stickle, T.R., Marini, V.A., & Thomas, J.N (2012). Gender Differences in Psychopathic Traits, Types, and Correlates of Aggression among Adjudicated Youth. *Journal of Abnormal Child Psychology*, 40, 513-525.

Stouthamer-Loeber, M., Loeber, R., Wei, E. H., Farrington, D. P. & Wikström, P-OH (2002). Risk and promotive effects in the explanation of persistent serious delinquency in boys. *Journal of Consulting and Clinical Psychology*, 70, 111–123.

Thompson, R. A (1994). The development of emotional regulation: Biological and behavioural considerations. *Monographs for the Society for Research in Child Development*, 59(2/3), 25-52

Toglia, M. P., & Battig, W (1978). *Handbook of semantic norms*. Hillsdale, NJ: Lawrence Erlbaum.

Topcu, C & Erdur-Baker, O., (2012). Affective and cognitive empathy as mediators of gender differences in cyber and traditional bullying. School *Psychology International*, 33(5), 550-561.

Trentacosta, C. J. & Shaw, D. S (2009). Emotional self-regulation, peer rejection and antisocial behaviour: Developmental associations from early childhood to early adolescence. *Journal of Applied Developmental Psychology*, 30(3), 356-365.

Verona, E. & Vitale, J (2005). Psychopathy in women: Assessment, manifestations and etiology. In C. J. Patrick (Eds.), *Handbook of Psychopathy* (pp 415-436), NewYork: Guildford

Viding, E., Blair, R. J. R., Moffitt, T. E. & Plomin, R (2005). Evidence for substantial genetic risk for psychopathy in 7 year olds. *Journal of Child Psychology and Psychiatry*, 46(6), 592-597.

Viding, E., Simmonds, E., Petrides, K.V. & Frederickson, N (2009). The contribution of callous-unemotional traits and conduct problems to bullying in early adolescence. *The Journal of Child Psychology and Psychiatry*, 50(4), 471-481

Vincent, G. M., Vitacco, M. J., Grisso, T. & Corrado, R. R (2003). Subtypes of adolescent offenders: Affective traits and antisocial behaviour patterns. *Behavioural Science and the Law*, 21, 695-712.

Vitacco, M. J., Rogers, R. & Neumann, C. S (2003). The antisocial process screening device: An examination of its construct and criterion-related validity. *Assessment*, 10, 143–150.

Vitacco, M., Neumann, C. S., & Jackson, R. L (2005). Testing of a four-factor model of psychopathy: Associations with gender, ethnicity, intelligence and violence. *Journal of Consulting and Clinical Psychology, 73(3*), 466-476.

Vitale, J. E., Smith, S. S., Brinkley, C. A. & Newman, J. P (2002). The reliability and validity of the Psychopathy Checklist– Revised in a sample of female offenders. *Criminal Justice and Behavior*, 29, 202-231.

Vitale, J. E., MacCoon, D. G. & Newman, J. P (2011). Emotional facilitation and passive avoidance learning in psychopathy female offenders. *Criminal Justice and Behaviour*, 38(7), 641-658.

Wechsler, D (1999). *Wechsler Abbreviated Scale of Intelligence*. San Antonio, TX: The Psychological Corporation.

White, S. F. & Frick, P. J (2010). Callous-unemotional traits and their importance to causal models of severe antisocial behavior in youth. In D. R. Lynam & R. T. Salekin (Eds.), *Handbook of Child and Adolescent Psychopathy* (pp. 135-155). New York: Guilford

Williamson, S., Harpur, T. J., Hare, R.D (2007). Abnormal processing of affective words by psychopathys. *Psychophysiology*, 28(3), 260-273

Woodworth, M. & Waschbusch, D (2008). Emotional processing in children with conduct problems and callous/unemotional traits. *Child Care Health and Development*, 34(2), 234-244.

Youth Justice Board (2012). *Youth Justice Statistics 2011/12.* Department of Justice, UK.

Zahn-Waxler, C., Radke-Yarrow, M., Wagner, E. & Chapman, M (1992). Development of concern for others. *Developmental Psychology*, 28, 126-136 .

Zahn-Waxler C., Cole P. M., Welsh J. D. & Fox N. A (1995). Psychophysiological correlates of empathy and prosocial behaviors in preschool children with problem behaviors. *Developmental Psychopathology* 7, 27–48

Zoccolillo, M (1993). Gender and the development of conduct disorder. *Developmental Psychopathology*, 5, 65-78.

Appendix 1: Letter to YOTs for Recruitment

To whom it may concern:

I hereby wish to request permission to carry out psychosocial research in a number of young offender units which are overseen by the Youth Justice Board. Specifically, I wish to recruit participants from the Medway children's Secure Training Unit at Rochester, Kent and London Youth Offending Teams.

The research is investigating emotional processing in adolescent males and females who have a history of offending. I would involve participants completing simple questionnaires, as well as a short, computerized task which measure reaction times and accuracy of responses (such as button presses). My research project is being undertaken as part of the research requirement for the doctoral programme in Clinical Psychology and the Institute of Psychiatry, King's College London, under the supervision of Dr Troy Tranah (Consultant Clinical Psychologist, South London and Maudsley NHS Foundation Trust). The following research ethics committees have reviewed and approved the project:

- King's College London Research Ethics Committee (reference: PNM/11/12-88)

In addition, Dr Tranah has previously conducted similar research at the Rochester Secure Training Unit, in successful collaboration with Ms Bellinda Casson. I would welcome the opportunity to make the findings available to the Youth Justice Board once completed.

Please find attached the proposals and ethical approval for each project. If you have any other questions, or required further clarification, please do not hesitate to contact me.

Yours Sincerely
Vanessa Buckley

Appendix 2: Recruitment Flyer for Participants

Institute of Psychiatry
King's College London

PARTICIPANTS NEEDED FOR RESEARCH IN EMOTIONAL PROCESSING

We are looking for volunteers to take part in a study of emotional processing in adolescent girls and boys.

As a participant in this study, you would be asked to: Fill in three questionnaires, do a five minute computer task and complete an exercise where you are asked to name pictures.

All information is completely anonymous.

Your participation would involve one session, which is approximately 35-50 minutes.

In appreciation for your time, you will receive a £10 One4All gift voucher that can be used in over 18,000 shops (e.g. Boots, Topshop, Argos, River Island etc.).

Please note that some volunteers may not be eligible for the study. If this is the case, these volunteers will not be asked to take part and therefore will not receive the £10 voucher.

For more information about this study, or to volunteer for this study, please contact:

Vanessa Buckley
Institute of Psychiatry
at
020 7848 0733 or
Email: *Vanessa.buckley@kcl.ac.uk*

This study has been reviewed by Psychiatry, Nursing and Midwifery Research Ethics Subcommittee ref; **PNM/11/12-88**.

Appendix 3: Information Sheet for Participants

INFORMATION SHEET FOR PARTICIPANTS

REC Reference Number: **PNM/11/12-88**

YOU WILL BE GIVEN A COPY OF THIS INFORMATION SHEET

Investigating Emotional Processing in Adolescent Females

We would like to invite you to participate in this postgraduate research project. You should only participate if you want to; choosing not to take part will not disadvantage you in any way. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what your participation will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information.

- The aim of this study is to investigate how adolescent girls and boys process emotional words and information differently.
- We are recruiting adolescent girls and boys aged 13-20, whose first language is English and who have had two or more contacts with criminal justice system.
- It is up to you to decide whether to take part or not. If you decide to take part you are still free to withdraw at any time and without giving a reason
- If you agree to take part, we will ask you to fill in three questionnaires, do a short 5 minute computer task and an exercise that asks you to name some pictures. In total this will take 35-50 minutes and will take place in the centre in which you are involved.
- All information you give will be anonymised and stored confidentially in line with the Data Protection Act 1998. All paper copies of research material will be stored in a locked cupboard in King's College London and can only be accessed by the primary researcher and supervisor
- A decision to withdraw at any time, or a decision not to take part, will not affect the standard of care you receive. As participation is completely

anonymous you can withdraw your data at any time after you finish participating up until the research is published.

- There are no significant risks to taking part in this study, however as the research takes nearly an hour, therefore there is a possibility that you may become tired or fatigued. You will be offered breaks if necessary. The research involves tasks regarding emotional processing. There is the potential that you may experience some negative or distressing emotions doing these tasks. You are free to withdraw from participation at any time.
- If you chose to take part and are eligible, you will receive a £10 One4All gift card that can be used in over 18,000 shops (e.g. Topshop, Boots, Argos, River Island) for the time that you have volunteered.
- If you decide to take part you will be given this information sheet to keep and be asked to sign a consent form.

If this study has harmed you in any way you can contact King's College London using the details below for further advice and information:

Vanessa Buckley
020 7848 0733

vanessa.buckley@kcl.ac.uk

Dr. Troy Tranah
020 7848 5018

troy.tranah@kcl.ac.uk

Appendix 4: Information Sheet for Parents/Guardians of Participants

INFORMATION SHEET FOR
PARENTS/GUARDIANS OF PARTICIPANTS

REC Reference Number: **PNM/11/12-88**

YOU WILL BE GIVEN A COPY OF THIS INFORMATION SHEET

Investigating Emotional Processing in Adolescent Females

We would like to invite your child to participate in this postgraduate research project. You should only give your consent if you want to; choosing not to take part will not disadvantage you or your child in any way. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what your participation will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information.

- The aim of this study is to investigate how adolescent girls and boys process emotional words and information differently.
- We are recruiting adolescent girls and boys aged 13-20, whose first language is English and who have had two or more contacts with criminal justice system.
- We will ask your child for their assent to take part as well. If you decide to give consent and they decide to take part, you or your child are still free to withdraw at any time and without giving a reason.
- If you agree to give consent, and your child agrees to participate, we will ask them to fill in three questionnaires, do a short 5 minute computer task and an exercise that asks them to name some pictures. In total this will take 35-50 minutes and will take place in the centre in which they are involved.
- All information they give will be anonymised and stored confidentially in line with the Data Protection Act 1998. All paper copies of research material will be

stored in a locked cupboard in King's College London and can only be accessed by the primary researcher and supervisor

- A decision to withdraw at any time, or a decision not to take part, will not affect the standard of care you or they receive. As participation is completely anonymous you or they can withdraw their data at any time after you finish participating up until the research is published.
- There are no significant risks to taking part in this study, however as the research takes nearly an hour, therefore there is a possibility that they may become tired or fatigued. Your child will be offered breaks if necessary. The research involves tasks regarding emotional processing. There is the potential that they may experience some negative or distressing emotions doing these tasks. Again, they are free to withdraw from participation at any time.
- If you chose to give consent and they chose to take part and are eligible, they will receive a £10 One4All gift card that can be used in over 18,000 shops (e.g. Topshop, Boots, Argos, River Island) for the time that they have volunteered.
- If you decide to give consent, you will be given this information sheet to keep and be asked to sign a consent form.

If this study has harmed your child in any way you can contact King's College London using the details below for further advice and information:

Vanessa Buckley
020 7848 0733

vanessa.buckley@kcl.ac.uk

Dr. Troy Tranah
020 7848 5018

troy.tranah@kcl.ac.uk

Appendix 5: Consent Form for Participants

CONSENT FORM FOR PARTICIPANTS IN RESEARCH STUDIES

Please complete this form after you have read the Information Sheet and/or listened to an explanation about the research.

Title of Study: Investigating Emotional Processes in Adolescent Females

King's College Research Ethics Committee Ref: PNM/11/12-88

Thank you for considering taking part in this research. The person organising the research must explain the project to you before you agree to take part. If you have any questions arising from the Information Sheet or explanation already given to you, please ask the researcher before you decide whether to join in. You will be given a copy of this Consent Form to keep and refer to at any time.

Please tick or initial

- I understand that if I decide at any time during my participation that I no longer wish to take part in this project, I can notify the researchers involved and withdraw from it immediately without giving any reason. ☐

- I consent to the processing of my personal information for the purposes explained to me. I understand that such information will be handled in accordance with the terms of the Data Protection Act 1998. ☐

- The information you have submitted will be published as a report and you will be sent a copy. Please note that confidentiality and anonymity will be maintained and it will not be possible to identify you from any publications ☐

Participant's Statement:

I _____

agree that the research project named above has been explained to me to my satisfaction and I agree to take part in the study. I have read both the notes written above and the Information Sheet about the project, and understand what the research study involves.

Signed Date

Investigator's Statement:

I _____

Confirm that I have carefully explained the nature, demands and any foreseeable risks (where applicable) of the proposed research to the participant.

Signed Date

Appendix 6: Consent Form for Parents/Guardians of Participants

CONSENT FORM FOR PARENTS/GUARDIANS OF PARTICIPANTS IN RESEARCH STUDIES

Please complete this form after you have read the Information Sheet and/or listened to an explanation about the research.

Title of Study: Investigating Emotional Processes in Adolescent Females

King's College Research Ethics Committee Ref: PNM/11/12-88

Thank you for considering giving consent for your child to take part in this research. The person organising the research must explain the project to you before you agree to take part. If you have any questions arising from the Information Sheet or explanation already given to you, please ask the researcher before you decide whether to join in. You will be given a copy of this Consent Form to keep and refer to at any time.

	Please tick or initial
• I understand that if I or my child decides at any time during their participation that they no longer wish to take part in this project, I can notify the researchers involved and withdraw my child from it immediately without giving any reason.	☐
• I consent to the processing of my child's personal information for the purposes explained to me. I understand that such information will be handled in accordance with the terms of the Data Protection Act 1998.	☐
• The information you have submitted will be published as a report and you will be sent a copy. Please note that confidentiality and anonymity will be maintained and it will not be possible to identify your child from any publications	☐

Parent/Guardian's Statement:

I _____

agree that the research project named above has been explained to me to my satisfaction and I agree to give consent for my child to take part in the study. I

have read both the notes written above and the Information Sheet about the project, and understand what the research study involves.

Signed Date

Investigator's Statement:

I _____

Confirm that I have carefully explained the nature, demands and any foreseeable risks (where applicable) of the proposed research to the participant's parent/Guardian.

Signed Date

Appendix 7: Letter to Schools for Recruitment

To whom it may concern:

I hereby wish to request permission to carry out psychosocial research in your educational institution. The research is investigating emotional processing in adolescent males and females who have a history of offending however for this section of the research, the aim is to recruit a number of **adolescent females** who **do not have a history of offending**

This research involves participants completing simple questionnaires, as well as a short, computerized task which measure reaction times and accuracy of responses (such as button presses). My research project is being undertaken as part of the research requirement for the doctoral programme in Clinical Psychology and the Institute of Psychiatry, King's College London, under the supervision of Dr Troy Tranah (Consultant Clinical Psychologist, South London and Maudsley NHS Foundation Trust). The following research ethics committees have reviewed and approved the project:

- King's College London Research Ethics Committee (reference: PNM/11/12-88)

In addition, Dr Tranah has previously conducted similar research at the Rochester Secure Training Unit, in successful collaboration with Ms Bellinda Casson. I would welcome the opportunity to make the findings available your institution when it is completed.

Please find attached the ethical approval for each project. If you have any other questions, or required further clarification, please do not hesitate to contact me.

Yours Sincerely
Vanessa Buckley

Appendix 8: Recruitment Flyer Controls

Institute of Psychiatry
King's College London

PARTICIPANTS NEEDED FOR RESEARCH IN EMOTIONAL PROCESSING

We are looking for volunteers to take part in a study of emotional processing in adolescent girls and boys.

As a participant in this study, you would be asked to: Fill in three questionnaires, do a five minute computer task and complete an exercise where you are asked to name pictures.

All information is completely anonymous.

Your participation would involve one session, which is approximately 35-50 minutes.

In appreciation for your time, you will receive a £10 One4All gift voucher that can be used in over 18,000 shops (e.g. Boots, Topshop, Argos, River Island etc.).

Please note that some volunteers may not be eligible for the study. If this is the case, these volunteers will not be asked to take part and therefore will not receive the £10 voucher.

For more information about this study, or to volunteer for this study,
please contact:

Vanessa Buckley
Institute of Psychiatry
at
020 7848 0733 or
Email: *Vanessa.buckley@kcl.ac.uk*

This study has been reviewed by Psychiatry, Nursing and Midwifery Research Ethics Subcommittee ref; **PNM/11/12-88**.

Appendix 9. Information Sheet for Controls

INFORMATION SHEET FOR CONTROL PARTICIPANTS

REC Reference Number: **PNM/11/12-88**

YOU WILL BE GIVEN A COPY OF THIS INFORMATION SHEET

Investigating Emotional Processing in Adolescent Females

We would like to invite you to participate in this postgraduate research project. You should only participate if you want to; choosing not to take part will not disadvantage you in any way. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what your participation will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information.

- The aim of this study is to investigate how adolescent girls and boys process emotional words and information differently.
- We are recruiting adolescent girls 13-20, whose first language is English and who have had no contact with criminal justice system.
- It is up to you to decide whether to take part or not. If you decide to take part you are still free to withdraw at any time and without giving a reason
- If you agree to take part, we will ask you to fill in three questionnaires, do a short 5 minute computer task and an exercise that asks you to name some pictures. In total this will take 35-50 minutes and will take place in the centre in which you are involved.
- All information you give will be anonymised and stored confidentially in line with the Data Protection Act 1998. All paper copies of research material will be stored in a locked cupboard in King's College London and can only be accessed by the primary researcher and supervisor

- A decision to withdraw at any time, or a decision not to take part, will not affect the standard of care you receive. As participation is completely anonymous you can withdraw your data at any time after you finish participating up until the research is published.
- There are no significant risks to taking part in this study, however as the research takes nearly an hour, therefore there is a possibility that you may become tired or fatigued. You will be offered breaks if necessary. The research involves tasks regarding emotional processing. There is the potential that you may experience some negative or distressing emotions doing these tasks. You are free to withdraw from participation at any time.
- If you chose to take part and are eligible, you will receive a £10 One4All gift card that can be used in over 18,000 shops (e.g. Topshop, Boots, Argos, River Island) for the time that you have volunteered.
- If you decide to take part you will be given this information sheet to keep and be asked to sign a consent form.

If this study has harmed you in any way you can contact King's College London using the details below for further advice and information:

Vanessa Buckley
020 7848 0733

vanessa.buckley@kcl.ac.uk

Dr. Troy Tranah
020 7848 5018

troy.tranah@kcl.ac.uk

Appendix 10: Consent Form for Control Participants

CONSENT FORM FOR CONTROL PARTICIPANTS IN RESEARCH STUDIES

Please complete this form after you have read the Information Sheet and/or listened to an explanation about the research.

Title of Study: Investigating Emotional Processes in Adolescent Females

King's College Research Ethics Committee Ref: PNM/11/12-88

Thank you for considering taking part in this research. The person organising the research must explain the project to you before you agree to take part. If you have any questions arising from the Information Sheet or explanation already given to you, please ask the researcher before you decide whether to join in. You will be given a copy of this Consent Form to keep and refer to at any time.

	Please tick or initial
• I understand that if I decide at any time during my participation that I no longer wish to take part in this project, I can notify the researchers involved and withdraw from it immediately without giving any reason.	☐
• I consent to the processing of my personal information for the purposes explained to me. I understand that such information will be handledin accordance with the terms of the Data Protection Act 1998.	☐
• The information you have submitted will be published as a report and you will be sent a copy. Please note that confidentiality and anonymity will be maintained and it will not be possible to identify you from any publications	☐

Participant's Statement:

I -

_____

agree that the research project named above has been explained to me to my satisfaction and I agree to take part in the study. I have read both the notes written above and the Information Sheet about the project, and understand what the research study involves.

Signed Date

Investigator's Statement:

I _____

Confirm that I have carefully explained the nature, demands and any foreseeable risks (where applicable) of the proposed research to the participant.

Signed Date

Appendix 11: Information Sheet for Parents/Guardians of Control Participants

INFORMATION SHEET FOR PARENTS/GUARDIANS OF CONTROL PARTICIPANTS

REC Reference Number: **PNM/11/12-88**

YOU WILL BE GIVEN A COPY OF THIS INFORMATION SHEET

Investigating Emotional Processing in Adolescent Females

We would like to invite your child to participate in this postgraduate research project. You should only give your consent if you want to; choosing not to take part will not disadvantage you or your child in any way. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what your participation will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information.

- The aim of this study is to investigate how adolescent girls and boys process emotional words and information differently.
- We are recruiting adolescent girls aged 13-20, whose first language is English and who have had no contact with the criminal justice system.
- We will ask your child for their assent to take part as well. If you decide to give consent and they decide to take part, you or your child are still free to withdraw at any time and without giving a reason.
- If you agree to give consent, and your child agrees to participate, we will ask them to fill in three questionnaires, do a short 5 minute computer task and an exercise that asks them to name some pictures. In total this will take 35-50 minutes and will take place in the centre in which they are involved.
- All information they give will be anonymised and stored confidentially in line with the Data Protection Act 1998. All paper copies of research material will be

stored in a locked cupboard in King's College London and can only be accessed by the primary researcher and supervisor

- A decision to withdraw at any time, or a decision not to take part, will not affect the standard of care you or they receive. As participation is completely anonymous you or they can withdraw their data at any time after you finish participating up until the research is published.
- There are no significant risks to taking part in this study, however as the research takes nearly an hour, therefore there is a possibility that they may become tired or fatigued. Your child will be offered breaks if necessary. The research involves tasks regarding emotional processing. There is the potential that they may experience some negative or distressing emotions doing these tasks. Again, they are free to withdraw from participation at any time.
- If you chose to give consent and they chose to take part and are eligible, they will receive a £10 One4All gift card that can be used in over 18,000 shops (e.g. Topshop, Boots, Argos, River Island) for the time that they have volunteered.
- If you decide to give consent, you will be given this information sheet to keep and be asked to sign a consent form.

If this study has harmed your child in any way you can contact King's College London using the details below for further advice and information:

Vanessa Buckley
020 7848 0733

vanessa.buckley@kcl.ac.uk

Dr. Troy Tranah
020 7848 5018

troy.tranah@kcl.ac.uk

Appendix 12: Parental Consent Form for Control Participants

CONSENT FORM FOR PARENTS/GUARDIANS OF CONTROL PARTICIPANTS IN RESEARCH STUDIES

Please complete this form after you have read the Information Sheet and/or listened to an explanation about the research.

Title of Study: Investigating Emotional Processes in Adolescent Females

King's College Research Ethics Committee Ref: PNM/11/12-88

Thank you for considering giving consent for your child to take part in this research. The person organising the research must explain the project to you before you agree to take part. If you have any questions arising from the Information Sheet or explanation already given to you, please ask the researcher before you decide whether to join in. You will be given a copy of this Consent Form to keep and refer to at any time.

	Please tick or initial
• I understand that if I or my child decides at any time during their participation that they no longer wish to take part in this project, I can notify the researchers involved and withdraw my child from it immediately without giving any reason.	☐
• I consent to the processing of my child's personal information for the purposes explained to me. I understand that such information will be handled in accordance with the terms of the Data Protection Act 1998.	☐
• The information you have submitted will be published as a report and you will be sent a copy. Please note that confidentiality and anonymity will be maintained and it will not be possible to identify your child from any publications	☐

Parent/Guardian's Statement:

I _____

agree that the research project named above has been explained to me to my satisfaction and I agree to give consent for my child to take part in the study. I

have read both the notes written above and the Information Sheet about the project, and understand what the research study involves.

Signed Date

Investigator's Statement:

I _____

Confirm that I have carefully explained the nature, demands and any foreseeable risks (where applicable) of the proposed research to the participant's parent/Guardian.

Signed Date

Appendix 13: Ethical Approval Letter

Vanessa Buckley
3rd Floor, Addiction Science Building
Institute of Psychiatry
King's College London
4 Windsor Walk
London SE5 8AF

17 April 2012

Dear Vanessa

PNM/11/12-88 Investigating the relationship between callous unemotional traits and emotional processes in offending adolescent females.

Review Outcome: Full Approval

Thank you for sending in the amendments/clarifications requested to the above project. I am pleased to inform you that these meet the requirements of the PNM RESC and therefore that full approval is now granted with the following provisos:

1. Draft approach letters:

1. Please state that the study has been approved by King's College London Psychiatry, Nursing and Midwifery Research Ethics Subcommittee, followed by the reference number.

I. The committee suggests that you ask schools if they would be willing to help rather than 'requesting permission' and as such you may need to amend your opening sentence. Please note, however, this is only a suggestion, not a condition of approval.

2. Information Sheets:

I. State the date up to which participants can withdraw their data i.e. month and year.

II. Put your contact details before the sentence that begins 'If this study has harmed you in any way...'. It should be clear to participants that you should be

contacted with general enquires about the study; whilst your supervisor is the point of contact should participants feel that the study has caused harm.

3. Consent Form:

I. State the date up to which participants can withdraw their data.

4. Recruitment Poster:

I. The committee has suggested the following wording may be more appropriate: 'Please note that some volunteers may not be eligible for the study. If you are eligible and included, though, then in appreciation for your time, you will receive a £10 One4All gift voucher that can be used in over 18,000 shops (e.g. Boots, Topshop, Argos, River Island etc)'. However, please note this is only a suggestion and not a condition of approval.

Please ensure that you follow all relevant guidance as laid out in the King's College London Guidelines on Good Practice in Academic Research (http://www.kcl.ac.uk/college/policyzone/index.php?id=247).

For your information ethical approval is granted until **17 April 2015**. If you need approval beyond this point you will need to apply for an extension to approval at least two weeks prior to this explaining why the extension is needed, (please note however that a full re-application will not be necessary unless the protocol has changed). You should also note that if your approval is for one year, you will not be sent a reminder when it is due to lapse.

Ethical approval is required to cover the duration of the research study, up to the conclusion of the research. The conclusion of the research is defined as the final date or event detailed in the study description section of your approved application form (usually the end of data collection when all work with human participants will have been completed), not the completion of data analysis or publication of the results. For projects that only involve the further analysis of pre-existing data, approval must cover any period during which the researcher will be accessing or evaluating individual sensitive and/or un-anonymised records. Note that after the point at which ethical approval for your study is no longer required due to the study being complete (as per the above definitions), you will still need to ensure all research data/records management and storage procedures

agreed to as part of your application are adhered to and carried out accordingly.

If you do not start the project within three months of this letter please contact the Research Ethics Office.

Should you wish to make a modification to the project or request an extension to approval you will need approval for this and should follow the guidance relating to modifying approved applications:
http://www.kcl.ac.uk/innovation/research/support/ethics/applications/modifications.aspx
The circumstances where modification requests are required include the addition/removal of participant groups, additions/removal/changes to research methods, asking for additional data from participants, extensions to the ethical approval period. Any proposed modifications should only be carried out once full approval for the modification request has been granted.

Any unforeseen ethical problems arising during the course of the project should be reported to the approving committee/panel. In the event of an untoward event or an adverse reaction a full report must be made to the Chair of the approving committee/review panel within one week of the incident. Please would you also note that we may, for the purposes of audit, contact you from time to time to ascertain the status of your research.

If you have any query about any aspect of this ethical approval, please contact your panel/committee administrator in the first instance (http://www.kcl.ac.uk/innovation/research/support/ethics/contact.aspx). We wish you every success with this work.

With best wishes
Yours sincerely

Catherine Fieulleteau
Senior Research Ethics Officer
Cc: Dr Troy Tranah

Appendix 14. Basic Empathy Scale

The following are characteristics that may or may not apply to you. Please tick one answer for each statement to indicate how much you agree or disagree with each statement. Please answer as honestly as you can.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. My friend's emotions don't affect me much.	☐	☐	☐	☐	☐
2. After being with a friend who is sad about something, I usually feel sad.	☐	☐	☐	☐	☐
3. I can understand my friend's happiness when she/he does well at something.	☐	☐	☐	☐	☐
4. I get frightened when I watch characters in a good scary movie.	☐	☐	☐	☐	☐
5. I get caught up in other people's feelings easily.	☐	☐	☐	☐	☐
6. I find it hard to know when my friends are frightened.	☐	☐	☐	☐	☐
7. I don't become sad when I see other people crying.	☐	☐	☐	☐	☐
8. Other people's feelings don't bother me at all.	☐	☐	☐	☐	☐
9. When someone is feeling 'down' I can usually understand how they feel.	☐	☐	☐	☐	☐
10. I can usually work out when my friends are scared.	☐	☐	☐	☐	☐

11. I often become sad watching sad things of TV of film	☐	☐	☐	☐	☐

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
12. I can often understand how people are feeling even before they tell me.	☐	☐	☐	☐	☐
13. Seeing a person who has been angered has no effect on my feelings.	☐	☐	☐	☐	☐
14. I can usually work out when people are cheerful	☐	☐	☐	☐	☐
15. I tend to feel scared when I am with friends who are afraid.	☐	☐	☐	☐	☐
16. I can usually realise quickly when a friend is angry.	☐	☐	☐	☐	☐
17. I often get swept up in my friend's feelings.	☐	☐	☐	☐	☐
18. My friend's unhappiness doesn't make me feel anything.	☐	☐	☐	☐	☐
19. I am not usually aware of my friend's feelings	☐	☐	☐	☐	☐
20. I have trouble figuring out when my friends are happy.	☐	☐	☐	☐	☐

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

Appendix 15. Abbreviated Dysregulation Measure

Instructions: Below is a series of statements. Indicate how often they are true of you by circling the number that best describes you.

	Never True	**Occasionally True**	**Mostly True**	**Always True**
I have difficulty staying seated at school or at home during dinner				
I get very fidgety after a few minutes If I am supposed to sit still				
I have difficulty keeping attention on tasks				
I get into arguments when people Disagree with me				
Little things or distractions throw me off				
I can't seem to stop moving				
Most of the time I don't pay attention to what I am doing				
I get bored easily				
I am easily distracted				
I spend money without thinking about it first				
I develop a plan for all my important goals				
I put my plans into action				

I think about the future consequences of my actions	□	□	□	□
Once I have made a goal I make a plan to reach it	□	□	□	□

	Never True	Occasionally True	Mostly True	Always True
As soon as I see things are not working, I do something about it				
I consider what will happen before I make a plan				
I think about my mistakes to make sure they don't happen again				
I spend time thinking about how to reach my goals				
Failure at a task or in school makes me work harder				
I stick to a task until it is finished				
I have trouble controlling my temper				
I lose sleep because I worry				
When I am angry I lose control over my actions				
I get so frustrated I often feel like a bomb ready to explode				
I fly off the handle for no reason				
There are days when I'm on edge all the time				
I easily become emotionally upset when I am tired				
Often I am afraid I will lose control of my feelings				
I slam doors when I am mad				

My mood goes up and down for no reason	□	□	□	□

Appendix 16: Inventory of Callous Unemotional Traits

Instructions: *Please read each statement and decide how well it describes you. Mark your answer by circling the appropriate number (0-3) for each statement. Do not leave any statement unrated.*

	Not at all true	Somewhat true	Very true	Definitely True
1. I express my feelings openly.	0	1	2	3
2. What I think is "right" and "wrong" is different from what other people think.	0	1	2	3
3. I care about how well I do at school or work.	0	1	2	3
4. I do not care who I hurt to get what I want.	0	1	2	3
5. I feel bad or guilty when I do something wrong.	0	1	2	3
6. I do not show my emotions to others.	0	1	2	3
7. I do not care about being on time.	0	1	2	3
8. I am concerned about the feelings of others.	0	1	2	3
9. I do not care if I get into trouble.	0	1	2	3
10. I do not let my feelings control me.	0	1	2	3
11. I do not care about doing things well.	0	1	2	3
12. I seem very cold and uncaring to others.	0	1	2	3
13. I easily admit to being wrong.	0	1	2	3
14. It is easy for others to tell how I am feeling.	0	1	2	3
15. I always try my best.	0	1	2	3
16. I apologize ("say I am sorry") to persons I hurt.	0	1	2	3
17. I try not to hurt others' feelings.	0	1	2	3
18. I do not feel remorseful when I do something wrong.	0	1	2	3
19. I am very expressive and emotional.	0	1	2	3
20. I do not like to put the time into doing things well.	0	1	2	3

21. The feelings of others are unimportant to me.	0	1	2	3
22. I hide my feelings from others.	0	1	2	3
23. I work hard on everything I do.	0	1	2	3
24. I do things to make others feel good.	0	1	2	3

Appendix 17: List of Words used in Lexical Decision Task

Number	Positive	Negative	Neutral
1	Cure	Mad	Page
2	Gold	Pain	Lift
3	Tree	Rake	And
4	Born	Limp	Fly
5	Mild	Bad	Snap
6	Glad	Flea	Sale
7	Cake	Gun	Call
8	Nice	Drab	Fate
9	Best	Rule	Sure
10	Real	None	Even
11	Like	Lose	More
12	Easy	Owed	Here
13	Idea	Slap	Some
14	Good	Dump	Over
15	Ever	Plea	Help
16	Make	Flee	Sane
17	Able	Poor	Dare
18	Fast	Mean	Knew
19	Neat	Vain	Join
20	Own	No	Past
21	Soul	Drop	What
22	Kind	Low	Main
23	Won	Fear	Verb
24	Give	Fail	Dorm
25	Rare	Kill	Adds
26	Fine	Sick	Far
27	Free	Ache	Want
28	May	Ugly	Into
29	Keen	Liar	Said
30	Near	Hell	Tied

Appendix 18: Instructions for Lexical Decision Task

WORDS TASK

to run program:
1) copy 6 program files into a directory named "word", enter word directory
2) next type "run word"
3) hit any key
4) type in the subject's name
5) confirm by typing the "y" key
6) type in the subject's number
7) confirm by typing the "y" key
8) insert data disk and then press the "g" key

INSTRUCTIONS FOR TASK: (Read verbatim to all children)

---"For the following game, you will be asked to look at the center of the computer screen. Sometimes a word will appear in the center of the screen, and sometimes letters may appear that do not form a word. When letters appear that form a word, press the "V" key (show child the location of the "V" key). When letters appear that do not form a word, press the "N" key (show child the location of the "N" key). As soon as letters appear on the screen, select one of these keys and push it as quickly as you can. Remember to continue to focus your attention on the center of the screen. For each word, try to answer right and try to answer fast. Do you have any questions? (Answer any questions that the child may have) O.K., lets try some for practice."

9) press "G" key to start practice blocks

---Watch the child as he/she completes the practice blocks (there will be two blocks of 18 words). If they have any difficulties or ask any questions, assist them with the task. When they complete the first block of 18, a message will appear that states that the child will have a short break. Read

Service Evaluation Project

Therapist Fidelity to a CBT manual for Obsessive Compulsive Disorder: Findings from a Specialist OCD CAMHS service

Supervised by Dr. Cynthia Turner

Institute of Psychiatry

May 2013

Contents

List of Figures

Abstract

Obsessive Compulsive Disorder (OCD) is a severe and chronic anxiety disorder, with a prevalence of approximately 1% in children and adolescents. In the UK, NICE guidelines for OCD recommend a "stepped care" model with cognitive behaviour therapy (CBT) involving exposure with response prevention (ERP) as first line treatment for young people. In recent years, a number of evidence based manuals for treatment of childhood anxiety, including OCD, have been developed. Treatment manuals may provide a way to promote and increase evidence based practice in mental health services. A key issue in relation to dissemination of evidence based practice manuals is therapist adherence to the guidance and components in the manual. This study evaluates therapist adherence to a CBT treatment manual developed, piloted and used in the National Specialist Obsessive Compulsive Disorder Team for Children and Young People. Forty-eight (48) young people who attended the clinic for CBT treatment between November 2011 and July 2012 were included in this retrospective analysis which used both indirect (therapist self-report) and direct (audio recordings of sessions) measurements of therapist adherence. Overall, the level of adherence to the treatment manual was found to be high (94% as measured by therapist self-report and 93% as measured by audio ratings of a randomly selected 20% of the sessions). A significant relationship was found between overall level of adherence and age. Factors related to therapist adherence as well as the CBT components and sessions most and least adhered to, are discussed.

1. Introduction

1.1 Anxiety in Childhood

The experience of fear as a child is a normal developmental process. Children typically fear a number of different things as they grow older (e.g. the dark, separation) which is generally considered developmentally appropriate (Gullone, 2000). However, beyond day to day fears, a small percentage of young people will develop an anxiety disorder which may negatively impact on their development as well as increasing the risk for further anxiety disorders, depression and substance abuse in later life (Essau, Conradt & Petermann, 2002). Anxiety disorders are the most common psychiatric diagnosis in childhood, with lifetime prevalence rates for any anxiety disorder between 10%-20% by the age of 18 (Costello et al. 2005).

1.2 Treating childhood anxiety

There are two main treatments with evidence for effectiveness in childhood anxiety disorders: pharmacotherapy using selective serotonin reuptake inhibitors (SSRI's), and cognitive behavioural therapy (CBT) including exposure to feared stimuli.(e.g. Birmaher et al., 2002; Ollendick & King, 1998; Ollendick & King, 2000). With regard to CBT treatment outcomes, although effective, between 20% and 60% of children continue to meet criteria for a diagnosable anxiety disorder after receiving treatment (Cartwright-Hatton et al., 2004; In-Albon & Schneider, 2007). Therefore, finding new and inventive ways to optimise the delivery of CBT for young people with anxiety disorders remains an important issue.

1.3 Obsessive Compulsive Disorder

Obsessive Compulsive Disorder (OCD) is a common, debilitating and chronic anxiety disorder with a prevalence of between 1%-2% in children and adolescents (National Institute of Health and Clinical Guidelines, 2005). It is

characterised by intrusive unwanted thoughts or images and associated ritualistic behaviour. While once thought rare in childhood, OCD has been documented in children as young as 3 years of age and has been shown to have a negative impact on familial, academic and social functioning (Piacentini et al., 2003). In addition, if left untreated, childhood OCD tends to persist into adulthood (Thomsen & Mikkelsen, 1995). Common obsessions in childhood OCD relate to contamination, safety of parents, symmetry, or being personally responsible for catastrophies. Compulsions are typically performed with the aim of "neutralising" the fear or the anxiety associated with the thought, and can include a variety of behaviours like excessive washing, arranging or reassurance seeking from parents. Of note, covert rituals are also common in childhood OCD, with some children and adolescents performing mental rituals to neutralise an obsession.

1.4 Treatment Options for OCD

The available evidence supports two treatments with established efficacy for childhood OCD: Cognitive Behavioural Therapy (CBT) involving Exposure and Response Prevention (ERP) and Selective Serotonin Reuptake Inhibitors (SSRIs) (e.g. Geller et al., 2001; Liebowitz et al., 2002; POTS, 2004; Franklin et al. 1998). CBT has consistently been shown to be an effective intervention, with remission rates ranging from 40% to 85% across different studies (Barrett, Healy-Farrell, & March, 2004; Benazon, Ager, & Rosenberg, 2002; POTS, 2004). When comparing CBT alone vs. SSRI treatment alone, the POTS study (2004) found that children who received CBT alone achieved a remission rate of 40% whilst children who received an SSRI alone achieved a remission rate of 21%. As a result, in 2005, the NICE guidelines recommended CBT with ERP (with an SSRI in more severe cases) as the first line treatment for OCD in children and adolescents. Research into the most powerful change strategies in CBT for young people with OCD has consistently indicated that ERP is the active element in treatment (e.g. Foa et al., 1984), and therefore the majority of currently available CBT treatments incorporate its use.

1.5 Manualised CBT

As the demand for evidence based practice becomes more important, a number of treatment protocols for anxiety disorders in childhood have been developed and disseminated, leading to the increasing use of manuals to guide intervention in children and young people (e.g. Coping Cat, Kendall, 2006; Cool Kids, Rapee et al., 2006 In these manuals, interventions are detailed with the aim of specifying the treatment components and strategies so that it is acceptably implemented (Kendall et al. 2008). Manuals guide therapy by providing a clear theoretical basis for the intervention, describing the key characteristics of the therapy, detailing and sequencing therapeutic techniques, and suggesting procedures for handling difficulties in therapy (e.g., Dobson & Shaw, 1988). A number of randomised controlled trials have shown a manualised approach to be effective in reducing symptoms of anxiety across a number of different countries, in different formats (group vs individual) and with different age groups (child v. adolescent) (e.g. Kendall et al., 1997; Cobham et al. 1998; Beidel et al., 2000, Hayward et al. 2000).

Resistance to manual-based treatments has been encountered with some clinicians claiming that they stifle the therapeutic alliance, ignore individual formulations and are inflexible (e.g. Smith, 1995, Silverman, 1996). Addis and Krasnow (2000) found that 45% of clinicians felt that manuals ignored the individual contributions of therapists, and 33% reported that they felt using manuals took away from the therapeutic interaction. Despite this, studies of manual-based treatments indicate high ratings of client satisfaction and therapeutic alliance. For example, children being treated using the Coping Cat program reported satisfaction and gave favourable ratings to their relationships with their therapists (Kendall et al., 2008). In other studies, clients have rated their therapeutic relationship as better in manual-based treatment programs compared to non-manualised (standard) treatment (Addis et al. 1999). Also, some studies found that the positive effects of a manual-based treatment for a specific disorder can generalize to other problem areas (Wade et al., 1998).

1.6 Treatment Fidelity

Treatment manuals aim to promote the dissemination of an evidence-based treatment, to reduce the variability in treatment implementation (Drozd & Goldfried, 1996) and enhance treatment fidelity (Erhardt et al., 1996). Treatment fidelity is defined as the degree to which the treatment as written in a specified manual was the treatment that was actually provided to the client (Perepletchikova & Kazdin, 2005). Aside from a positive therapeutic alliance, the therapeutic interventions provided in CBT, such as exposure to feared stimuli, are considered critical agents of change in children and young people with anxiety disorders (Shadish & Sweeney, 1991). Research suggests that a high degree of fidelity to evidence based manuals is expected to produce the most consistent and positive effects in therapy (Gresham, 1989; Peterson, Homer, & Wonderlich, 1982). Measuring fidelity to treatment is important for three reasons. Firstly, measuring the integrity of interventions gives us information about which therapies produce positive effects. More specifically, monitoring treatment fidelity can help determine if a specific therapeutic intervention did not produce change because it was not an effective treatment or because it was implemented poorly. Secondly, collecting data on treatment fidelity also provides information on the active components of the treatment that are critical to intervention success (Perepletchikova & Kazdin, 2005). Finally, studies on treatment fidelity can highlight the feasibility of different interventions and their component parts (Peterson & McConnell, 1993).

A central aspect of treatment fidelity is the degree to which the therapist delivers the treatment according to what is instructed in the treatment manual. This is referred to as treatment or therapist adherence. In general, high treatment fidelity is considered to be between 80%–100% adherence, whereas low fidelity is considered to be below 50% (e.g. Burke, 1996; Gansle & McMahon, 1997; Noell et al., 2002). Treatment adherence can be further broken down into two separate constructs. Component integrity refers to the integrity of implementing each treatment component across sessions. Session integrity refers to the integrity of all treatment components within one session. Although overall

integrity may be high, a treatment may fail to produce a significant outcome because of poor component integrity and/or session integrity.

The importance of assessing treatment fidelity in a service has become paramount with the demand for accountability and transparency in psychological therapy. Many early research papers assessing the efficacy of different therapeutic interventions gave only vague descriptions of the nature of each treatment and the elements involved in each program. In addition, frequently insufficient information was reported to compare or replicate the interventions (VandenBos, 1980). For example, treatments were often defined broadly (e.g., psychoanalytic therapy). Currently, more emphasis has been placed on detailed therapeutic information and collection of session-by-session data to ensure that each therapeutic procedure adheres to an evidence-based protocol and that the treatment is consistent across patients.

1.7 Measuring Therapist Adherence

There is some disparity in the findings of studies focused on the relationship between treatment fidelity and treatment outcomes. Although many studies highlight therapist adherence as an important predictor of a successful clinical outcome, there are other studies that find no relationship whatsoever (Perepletchikova et al., 2007). These discrepancies and others have been hypothesised to originate from several different factors relating to measurement error. Some studies rely wholly on indirect measures of integrity (e.g. therapist self-report). This can create difficulties due to over or under-representation of treatment integrity as therapists may wish to portray themselves as adhering to a manual more closely than they actually do (Perepletchikova & Kazdin, 2005). Kendall and Beidas (2007) suggest that fidelity be assessed by checking tapes of sessions and comparing them to the components of the manual. Therefore it is recommended that any assessment of treatment integrity should ideally involve both direct observations through audio recording in addition to indirect measures such as therapist report. Perepletchikova & Kazdin (2000) also suggest that multiple sessions, randomly selected from each phase of treatment, should be selected for observation and analysis.

1.8 Factors influencing Therapist Adherence

A number of different treatment, client and therapist factors have been considered in the literature as being related to treatment fidelity. One factor that has emerged as a consideration is the severity and chronicity of the presenting problem. It has been suggested that strict compliance with a manual is more challenging in chronic, complex cases because more work may be necessary with these clients, resulting in the therapist incorporating different techniques. For example, in a study by Schoenwald et al. (2003) it was found that in a community setting, the comorbidity of antisocial behaviour and substance misuse was inversely related to therapist adherence to a multisystemic therapy manual. Other factors that have been examined include therapist motivation and treatment acceptability as rated by the client.

However, there is very little literature relating to whether the mode of therapy delivery has any effect on treatment fidelity. There is some evidence to suggest that the mode of therapy does not affect the therapist's adherence to their manual. For example, Frueh et al. (2007) found no difference in adherence ratings when comparing CBT for PTSD delivered via videoconferencing and CBT delivered in a face-to-face setting. However many studies simply do not report adherence rates at all. There is a need for further research into the impact of mode of delivery on therapist adherence to protocol, and this is one of the areas of inquiry that this study will examine, specifically in relation to CBT for OCD in young people. .

2. Rationale

There is a growing evidence base that supports the view that manualised CBT for anxiety disorders in young people produces the best outcomes and are the best use of clinical resources (Kendall & Chu, 2000; Dadds, Heard, & Rapee, 1992). From a service level perspective, there is a growing emphasis within the NHS on evidence based practice in children and young people's services (e.g. Wolpert et al., 2006). This is mirrored in the development and introduction of the Children and Young People's IAPT which places an emphasis on routine evaluation, monitoring of sessions and evidence based practice. However, to ensure evidence based practice is being delivered and producing efficacious outcomes, fidelity to therapy content needs to be assessed in order to ensure that services are delivering the therapies that they purport to.

From a scientist-practitioner viewpoint, high treatment fidelity is key to maintaining the internal validity of treatments and allows for transparent comparisons of interventions through empirical research. In fact, the interpretation of treatment outcomes can depend largely on the strength of the evidence for treatment fidelity (Elkin et al. 1988). For example, if significant results are found but fidelity was not measured or analysed, the reported outcome may indeed have been due to an effective treatment, but it may also have been due to unknown co-occurring factors. In the same way, non-significant results reported without any information about the treatment fidelity may in fact be attributable to poorly administered therapy (e.g. Quay, 1977).

This study was therefore designed to examine therapist fidelity to a manualised intervention in a National and Specialist CAMHS Service within the Maudsley Hospital. As such, it acts as a quality assurance audit to ensure that the interventions young people receive are consistent with current best practice guidelines, and are of high quality.

3. Aims

The aim of this study was threefold:

1. To evaluate, using direct and indirect measures, the overall level of therapist adherence to an evidence-based treatment manual within a National Specialist service for children and young people with obsessive-compulsive disorder.
2. To investigate therapist adherence to specific therapeutic strategies within the treatment protocol, in addition to overall therapist adherence within each session.
3. To examine possible relationships between the level of treatment adherence and other measured client factors (i.e. severity of symptoms at assessment, age/gender of client) and service factors (i.e. mode of therapy delivery: telephone or face-to-face).

4. Method

4.1 Setting

This study took place with the Child and Adolescent National and Specialist Obsessive Compulsive Disorder Service, which is situation within Tier 4 National and Specialist CAMHS services at the Maudsley Hospital. Tier 4 CAMHS provides specialised services in residential, day patient or out-patient settings for children and adolescents with severe and/or complex problems requiring a combination or intensity of interventions that cannot be provided by Tier 3 specialist CAMHS (York et al. 2004). Tier 4 services are usually commissioned on a sub-regional, regional or supra-regional basis. The Child and Adolescent National and Specialist OCD team accepts referrals from Tier 3 CAMHS nationwide. All young people deemed suitable for referral by the team's Consultant Psychiatrist were added to the waiting list which was on average four months long. As a Tier 4 service, all young people accepted for assessment had received at least some input from other services for their OCD symptoms (the minimum being a generic tier 3 CAMHS assessment). Therefore, most young people seen at the clinic presented with complex or treatment refractory OCD.

4.2 Procedure

This study took place at the between November 2010 and November 2011. At this time, there were 7 Clinical Psychologists treating children and young people using manualised CBT within the service broadly, and as part of an on-going randomised controlled trial. Each young person was seen by the multi-disciplinary team for an initial assessment involving the child and parent(s) or carer(s). This assessment consisted of a clinical interview for young people using the Children's Yale-Brown Obsessive Compulsive Scale (CY-BOCS) (Scahill et al. 1997), a parental interview and developmental history, a clinician rated Children's Global Assessment Scale (CGAS) (Shaffer et al. 1983), and child and parent completed questionnaires including the Child Obsessional

Compulsive Inventory Revised (CHOCI-R) (Shafran et al., 2003), and the Strengths and Difficulties Questionnaire (Goodman, 1997). The young person was subsequently allocated to a clinician for treatment, usually following a waiting period of approximately 8 weeks. Each young person was seen weekly for up to 14 sessions of manualised CBT either in person or over the telephone. Clinicians were asked to audio record their sessions for adherence ratings with the informed consent of each client. Audio recordings were then downloaded and stored anonymously on the IT network.

After every therapy session, each therapist was asked to fill in a rating form indicating what parts of each session they had completed. A copy of this form is included in Appendix 1. The form includes a tick-box for each separate piece of session content, and requires clinicians to tick the box if they felt they had included that piece of content within the session, and to refrain from ticking the box if they had not. All self-reported adherence forms were collected for analysis. Of the audio recorded sessions that were collected a random selection of 33% were selected for further review. These sessions were listened to in their entirety and marked against a blank tick box adherence form by the Trainee Clinical Psychologist who was blind to the client's identity, demographics or presentation. Session content was coded as either present (1) or not present (0).

Within the 14 session treatment protocol, the first two sessions were focused on psychoeducation about both OCD and CBT, the subsequent 10 sessions were focused on exposure to feared stimuli incorporating response prevention (E/RP), and the final two sessions were dedicated to relapse prevention and maintenance of gains. Within the E/RP-based sessions, therapists were required to make every effort to incorporate an in vivo E/RP task, followed by setting up homework and a parental check in.

4.3 Participants

In total, 48 clients who attended the clinic between November 2010 and November 2011 were included in this study. All clients seen had a primary Axis 1 diagnosis of Obsessive Compulsive Disorder and were offered treatment in

the form of CBT for OCD either in the clinic or over the telephone based on random allocation.

5. Results

5.1 Sample Characteristics

Of the 48 clients included in this study, 25 were female and 23 were male. The mean age of these clients at the time of treatment beginning was 14.44 years of age (SD= 2.082). The age range was 11 to 18 years of age. The average CY-BOCS score at initial assessment was 24.75 (SD= 3.64) with a range of 16 to 31. Of the 48 clients, 27 were randomly allocated to receive telephone CBT whilst 21 were allocated to receive face to face CBT. All sessions held with the selected clients were analysed by examining the adherence record kept by the treating clinician. Therefore in total, 672 sessions were reviewed for therapist self-rated adherence. In addition, 225 sessions were randomly selected for further audio analysis of therapist adherence. Every therapy component of each session was coded as 1 (present) or 0 (not present). Given the assumption that each therapy element was equally important, adherence was calculated by calculating the overall number of treatment elements actually completed as a percentage of the overall total possible.

5.2 Treatment Adherence as measured by therapist self-report

Analysis of therapist ratings of all 14 sessions of CBT revealed an overall adherence to protocol of 94%.

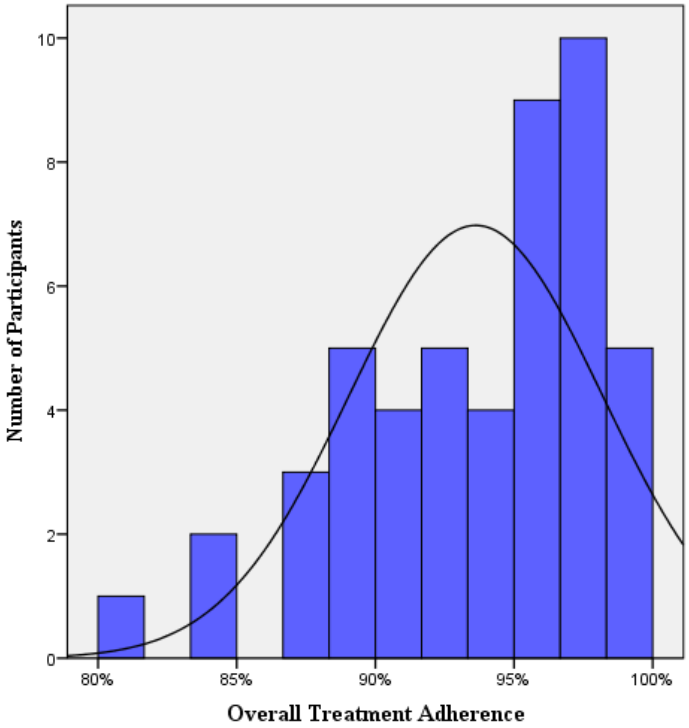


Figure1: Histogram Depicting the Overall Treatment Adherence in percentage

5.3 Treatment Adherence as measured by audio ratings

Of the 48 clients selected for this study, 43 were included for analysis of audio ratings of therapist adherence. In order to be selected for audio rating, each client was required to have at least three out of fourteen sessions recorded and available for rating. Analysis of randomly selected audio recordings of sessions revealed an overall adherence of 93% which was in line with the therapist self-rated adherence.

5.4 Session by session adherence analysis

Analysis of therapist adherence to treatment protocol by session revealed that session one was the session with the highest adherence to protocol (97%). Conversely, sessions five and six were the sessions with the lowest adherence to protocol (89% and 90% respectively).

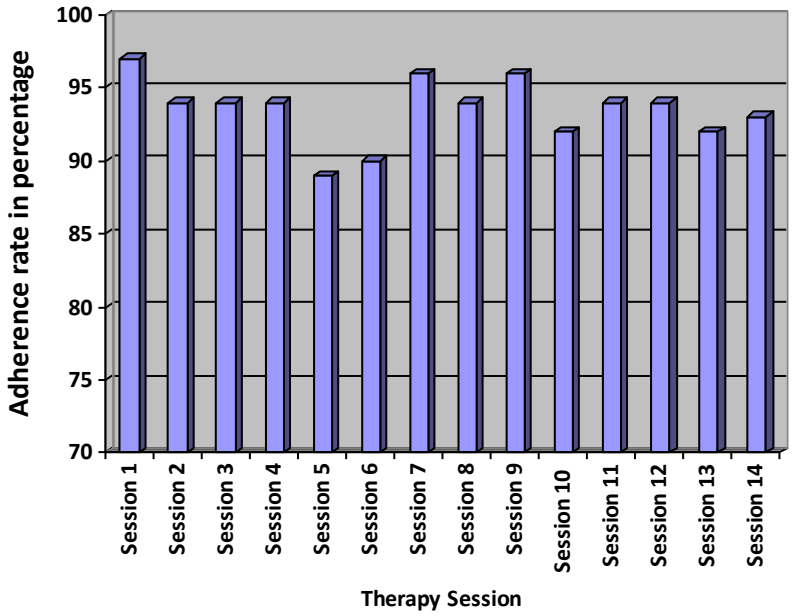


Figure 2. Session by session analysis or therapist adherence in percentage

5.5. Component adherence analysis

In order to establish component adherence for the various therapeutic tasks in the manual, adherence ratings across sessions were analysed for the in-vivo E/RP tasks, the discussion of homework for the coming week, and the parent check-in. Analysis of these 3 components revealed:

1. An overall adherence rate to of 97% to the E/RP component across sessions.
2. An overall adherence rate of 98% to the homework component across sessions.
3. An overall adherence rate of 84% to the parental check-in.

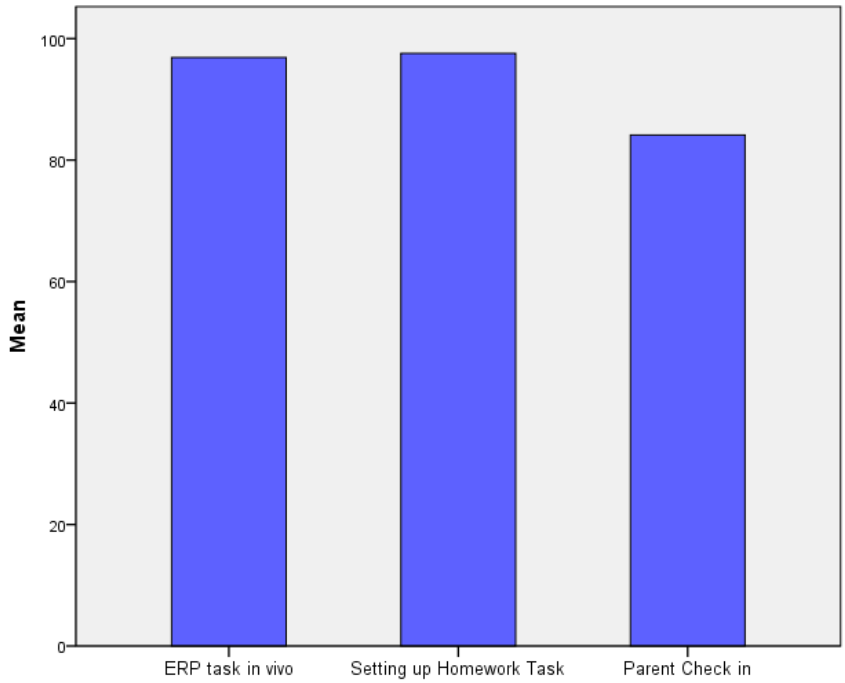


Figure 3. Overall Adherence in Percentage for CBT Components across Sessions

5.6. Factors relating to Treatment Adherence

Given that previous research has suggested that the complexity or severity of the presenting problem may influence treatment adherence, the relationship between initial OCD severity, as measured by the CY-BOCS, and treatment adherence is examined here. In addition, the relationship between adherence and both demographic and service factors are investigated as well.

5.6.1 CY-BOCS

Analysis using Pearson's product moment correlation coefficients revealed no significant relationship between severity of OCD symptoms at assessment as measured by the CY-BOCS and treatment adherence ($r = -1.51$, $p>.05$, two tailed).

5.6.2 Age

Analysis using Pearson's product moment correlation coefficients showed that there was a significant relationship between the client's age and overall adherence to protocol, ($r = -.320$, $p<.05$, two tailed) with therapist adherence being lower with increased age.

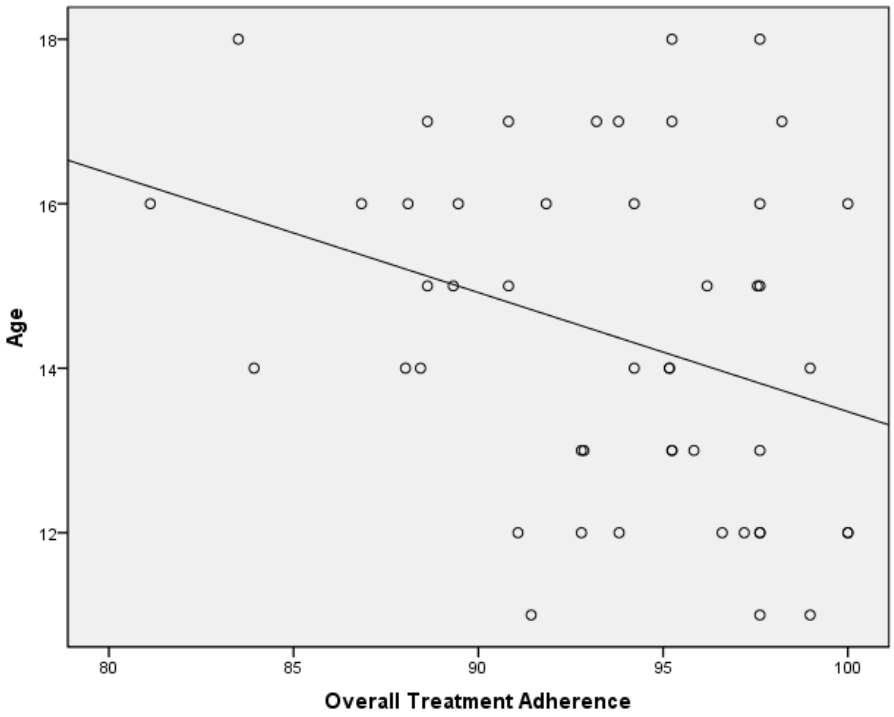


Figure 4. Scatterplot Depicting the Correlation between Age and Treatment Adherence

5.6.3 Gender

Analysis using independent sample t-tests suggested that there was no significant difference in treatment adherence found when comparing girls and boys ($t (46) = .88$, $p>.05$).

5.6.4 Mode of therapy delivery

There was no significant difference in overall treatment adherence based on whether the client was seen for telephone CBT or face to face CBT ($t(46) = .82$, $p>.05$).

6. Discussion

6.1 Summary of results

This study examined the adherence of therapists to an evidence based manual of CBT for OCD in children and young people within a specialist OCD clinic. Adherence was measured by both direct (audiotaped recordings of sessions) and indirect (therapist self-report) measures. Overall, the rate of adherence to the manual was found to be high (94% as measured by self-report, 93% as measured by audio-recordings). This would be considered a high rate of overall treatment fidelity as defined by the current literature (Burke, 1996).

6.2 Factors related to therapist adherence

Previous research has suggested that a higher level of chronicity and severity of presenting problems may negatively impact on treatment fidelity however the current study provides evidence to the contrary. There was no significant relationship between therapist adherence and severity of symptoms at initial assessment as measured by the CY-BOCS. Given the nature of a Tier 4 clinic, many of the young people seen presented with a long history of chronic and treatment refractory OCD. Many of these young people had received previous psychological therapy (including CBT) and pharmacological intervention to little avail. It may be that the highly specialised expertise and training available and provided to clinicians working in the clinic contributed to therapist's ability to adhere to the manual to a high level.

Although no causation can be inferred from the results of this study, it is interesting that a significant relationship was detected between age and overall adherence. More specifically, the level of therapist adherence to the manual decreased with age. There are a number of possible factors that might in part explain this finding. Kingery et al. (2006) suggests that when treating anxiety in young people, adolescents and older children may be more difficult to engage, requiring a particularly collaborative approach that may not be necessary with

younger children. In addition, younger children's parents tend to take a more active role in treatment and often help at home with encouraging and supporting the child to carry out their homework tasks. Conversely with adolescents, there may be more difficulty with non-compliance to homework tasks and additional time spent problem solving around this in session (Kingery et al. 2006). Other factors that might be at play include the increased likelihood for comorbid mood disorders in adolescents. Whilst all young people in this study had a primary diagnosis of OCD, it was more common for adolescents to experience periods of low mood or dysthymia which may negatively impact on the therapeutic relationship and bring unrelated material into sessions that needed to be addressed In addition, the presentation of anxiety in adolescence can be more complex, chronic, and severe when compared to children (Clark et al. 1994; Ollendick et al. 2008). Finally, the behaviour of adolescents with anxiety disorders may present a challenge to therapists due to a complex interaction between avoidance as a safety behaviour on the one hand and potential defiance led by strivings for autonomy on the other (Garland 2001). Qualitative observations from audio coding suggested that the reason for deviation from the manual was often related to client's avoidance of completing an ERP task in session. However, other reasons noted included engagement issues, the use of cognitive restructuring to challenge thoughts about ERP tasks and problem solving around homework non-compliance. Given that the tapes were not specifically analysed or coded to describe the specific reason for deviation from the manual, these observations are largely anecdotal and should therefore obviously be interpreted with caution. The current study also interestingly provides evidence of a high agreement between self-reported and objective measures of treatment adherence. Previous research has found a low agreement between direct and indirect methods (e.g. Carroll, Nich, & Rounsaville, 1998).

6.3 Session by Session Therapist Adherence

Of note, the session with the highest adherence rating across both therapist ratings and audio ratings was session one whilst conversely the sessions with the lowest adherence ratings were sessions five and six. It may be hypothesised that both the content and the order of the psycho-education sessions promote

higher therapist adherence. Firstly, it may have been easier to stick to manual guidelines in psycho-education due to the nature of the sessions which involve more information giving and assessment than in further sessions. Conversely, sessions five and six were the sessions with the lowest adherence ratings. One might hypothesise that at this stage of therapy, the therapist is beginning to encourage the client to begin frequent challenging E/RP tasks after presenting the rationale and psycho-education in previous sessions. It might be at this point that initial problem solving around non-compliance with homework, or avoidance of E/RP tasks in session may be necessary for the first time, forcing therapists to side-track from the manual guidance to promote and maintain a good therapeutic relationship.

6.4 Intervention Components

From examining the component analysis, it is clear that both the in vivo E/RP tasks and homework setting across sessions were very highly adhered to. The rate of fidelity for E/RP tasks was 97% and for homework setting was 98%. By contrast, the element with the least adherence was the parental check in at the end of sessions with a significantly lower adherence score at 84%. There are a number of possible explanations for this. Although some research highlights the benefit of involving parents in CBT treatment, these studies also emphasise the developmental appropriateness of this (i.e. that this is more beneficial and works better with younger children). It may be that a certain amount of adolescents either refused to or avoided involving their parents in treatment. It may also be the case that parents were not practically able to attend each session. This gap was detected in both the therapist's self-ratings and the audio ratings. In both conditions it is also possible that the therapist made arrangements to have a "check in" with the parents at a later stage perhaps on the telephone. However perhaps the methodology of this study was not sensitive to pick this up or the therapists were not specifically instructed to make a record of this. Without mentioning a plan on the adherence sheet or on their tapes to check in with parents at a later time the adherence ratings for this component were obviously lowered. Of course, it might also be that there is something about parental check in that makes it inherently more difficult to adhere to. Further research is

warranted into the role of parent check in and involvement and its impact on treatment adherence.

6.5 Telephone vs. Clinic Administered CBT

It is noteworthy that there was no difference in therapist's adherence to the manual when comparing the clients who were seen for face to face CBT and those seen for telephone CBT. This provides further evidence for the utility of manualised therapy in children and young people. The results suggest that the ability to use standard CBT techniques is not impacted by the session being held over the phone. This is particularly interesting given the active nature of ERP and the large behavioural component in this treatment. Perhaps this is not surprising given that other studies focusing on telephone CBT have reported high levels of treatment fidelity (e.g. Himelhoch et al. 2011).

6.6 Limitations

This study is not without its limitations. Firstly, the audio-taped sessions were rated by a Trainee Clinical Psychologist who was trained in the use of the manual. However, in order to increase the validity of the ratings, it may have been useful to use a second rater in order to compare the audio ratings of each session. Furthermore, when rating the audio tapes, it was clearly evident which sessions were taking part on the telephone and which were taking part in the clinic. Therefore the rate was not blind to what strand of therapy the young person was receiving and there is a possibility that this may have created a bias in rating which in turn may have impacted on the adherence ratings.

Notably, this study did not measure or analyse other aspects of treatment integrity, for example therapist competence or treatment differentiation. Therapist competence is defined as the level of the therapist's skill and judgment (Perepletchikova, 2007) whilst treatment differentiation can be described as a measure of whether treatments differ from each other along a number of critical dimensions (e.g., Waltz et al. 1993). When considering treatment differentiation, in fact a measure of therapist adherence like collected

in this current study is sufficient for determination of whether interventions are distinct (Waltz et al., 1993). In other words, when therapists adhere closely to the selected manual they are by definition avoiding therapeutic techniques from other interventions and therefore preserving the purity of the therapy they are delivering. However, the relationship between adherence and therapist competence is more complicated. Some studies show a strong association (e.g. Paivio et al. 2004), whilst others so no relationship at all (e.g. Barber et al. 2006). Therapist competence should theoretically result in good adherence however adherence does not necessarily mean competence. Several other treatment features that could be considered in the evaluation of treatment integrity, such as the number and duration of sessions (Kazdin, 1986 a & b) and the frequency, intensity, and sequencing of specific procedures (Nelson, 1985 & Quay, 1977) were also not measured in the current study. In addition, there was no consideration of non-specific factors such as therapist-child alliance. If this research was to be repeated, it may be interesting to include measures of the therapy features listed above.

A point to note about the generalizability of this study is that it only includes children aged 11 and over. It has been recognised that children under 10 may need specific adaptations to effectively use standard CBT technique and therefore the development of manualised treatment for OCD in younger children may require different adaptations. In may be that the therapist adherence to the "parent check in" item may increase with younger children given the larger need for family and parental involvement in treatment. In addition, language skills may be less well developed than older children, and emotional awareness and distinguishing abilities are likely to be less sophisticated. As a result, certain aspects of treatment may be affected, for example the rationale for treatment may not be understood due to the need to use abstract concepts and generalise specific ideas to other areas. The development of an anxiety scale or hierarchy also involves abstract thinking and a degree of reasoning that may be less well developed in younger children (e.g. Riggs & Peterson, 2000). In addition, the ability to separate, identify and label separate emotions may be less well established than in adolescents (Hirshfield-Becker et al. 2010). Therefore, it may be that in a group of younger children the

psychoeducation section of this manual may have not been as well adhered to or may have needed adaptation in younger children. However, it is also important to note that the current study suggests that within this sample treatment adherence was actually better with the younger participants in the sample suggesting that this protocol may be suitable for children younger than 11.

A final drawback that must be commented on is the breakdown of ethnicity in the current sample. The majority of clients included in this study were white British (81%). This reflects the more general trend of ethnicity in children and young people presenting to mental health services with obsessive compulsive disorder. Although epidemiological studies suggest there should be no difference in the prevalence of OCD across different ethnicities in childhood (Rasmussen & Eisen, 1992), most large treatment trials contain largely white samples (e.g. Freeman et al, 2010, POTS study, 2004). However, this does raise questions regarding the transferability of the manual and therapist adherence to it. It may be that within a more ethnically diverse population, therapists have more or less difficulty adhering to the manual. Further research is warranted to the impact of ethnicity of treatment fidelity.

In summary, this study provides reliable evidence for the feasibility of implementing manualised CBT for OCD in children and young people within a specialist mental health service with a high level of treatment fidelity.

7. References

Addis, M., & Krasnow A (2000). A national survey of practicing psychologists' attitudes towards psychotherapy treatment manuals. *Journal of Consulting and Clinical Psychology*, 68, 331-339

Addis, M., Wade, W., Hatgis, C (1999). Barriers to dissemination of evidence-based practices: addressing practitioner's concerns about manual-based psychotherapies. *Clinical Psychology Science and Practice,* 6(4), 430-441

Barber, J. P., Gallop, R., Crits-Christoph, P., Frank, A., Thase, M. E., Weiss, R. D., & Connolly Gibbons, M. B (2006). The role of therapist adherence, therapist competence, and alliance in predicting outcome of individual drug counselling: Results from the National Institute Drug Abuse Collaborative Cocaine Treatment Study. *Psychotherapy Research, 16,* 229–240.

Benazon, N.R., Ager, J. & Rosenberg, D.R (2002). Cognitive behaviour therapy in treatment-naïve children and adolescents with obsessive-compulsive disorder: and open trial. *Behaviour and Research and Therapy*, 40, 529-539

Beidel, D. C., Turner, S. M., & Morris, T. L (2000). Behavioral treatment of childhood social phobia. *Journal of Consulting and Clinical Psychology, 68,* 1072-1080.

Burke, R. V (1996). Effects of treatment integrity and risk for children abuse on parent training outcomes. *Dissertation Abstracts International*. Vol. 56(7-A), 2884, US: University Microfilms International

Carroll, K.M., Nich, C., Rounsaville, B.J (1998). Use of observer and therapist ratings to monitor delivery of coping skills treatment for cocaine

abusers: Utility of therapist session checklists. *Psychotherapy Research*, 8, 307–320.

Cartwright-Hatton, S., Roberts, C., Chitsabesan, P., Fothergill, C. & Harrington, R (2004). Systematic review of the efficacy of cognitive behaviour therapies for childhood and adolescent anxiety disorders. *British Journal of Clinical Psychology*, 43(4), 421-436

Chu, B.C. & Kendall, P.C (2004). Positive association of child involvement and treatment outcome within a manual-based cognitive-behavioural treatment for children with anxiety. *Journal of Consulting and Clinical Psychology*, 72 (5), 821-829

Chung, E. & Heyman, I (2008). Challenges in child and adolescent obsessive-compulsive disorder. *Psychiatry*, 7(8), 319-324

Clark, D. B., Smith, M. G., Neighbors, B. D., Skerlec, L. M., & Randall, J (1994). Anxiety disorders in adolescence: Characteristics, prevalence, and comorbidities. *Clinical Psychology Review*, 14(2), 113–137.

Cobham, V.E., Dadds, M.R. & Spence, S.H (1998). The role of parental anxiety in the treatment of childhood anxiety. *Journal of Consulting and Clinical Psychology*, 66: 893-905

Conlan, L., & Heyman, I (2007). Helping patients to overcome obsessive compulsive disorder. *The Practitioner*, 251(1700), 57-66

Costello, E.J., Egger, H.L. & Angold, A (2005). The developmental epidemiology of anxiety disorders: phenomenology, prevalence and comorbidity. *Child and Adolescent Psychiatric Clinics of North America*, 14(4), 631-648

Dobson, K.S., Shaw, B.F (1988). The use of treatment manuals in cognitive therapy: Experience and issue. *Journal of Consultant and Clinical Psychology*, 56, 1-8

DiLoreto, A. O (1971). *Comparative psychotherapy: An experimental analysis.* Chicago: Aldine

Drozd, J.F. & Goldfried, M.R (1996) A critical evaluation of the state-of-the-art in psychotherapy outcome research. *Psychotherapy: Theory, Research, Practice, Training*, 23(2), 171–180

Ehrhardt, K.E., Barnett, D.W., Lentz, F.E., Stollar, S.A. & Reifin, L.H (1996) Innovative methodology in ecological consultation: use of scripts to promote treatment acceptability and integrity. *School Psychology*, 2, 149–168.

Essau, C.A., Conradt, J. & Petermann, F (1999). Frequency and comorbidity of social phobia and social fears in adolescents. *Behaviour Research and Therapy*, 37, 831-843

Essaur, C.A., Conradt, J. & Petermann, F (2002). Course and outcome of anxiety disorders in adolescents. *Journal of Anxiety Disorders*, 16, 67-81

Elkin, I., Pilkonis, P., Docherty, J. & Sotsky, S (1988). Conceptual and methodological issues in comparative studies of psychotherapy and pharmacotherapy, I: Active ingredients and mechanisms of change. *American Journal of Psychiatry,* 156, 909-917

Foa, E.B., Steketee, G., Grayson, J.B., Turner, R.M. & Latimer, P.R (1984). Deliberate exposure and blocking of obsessive compulsive rituals: Immediate and long-term effects. *Behaviour Therapy,* 15; 450-470

Franklin ME, Kozak MJ, Cashman LA, Coles, M.E., Rheingold, A.A. & Foa, E.B. (1998). Cognitive-behavioral treatment of pediatric obsessive-compulsive disorder: An open clinical trial. *Journal of the American Academy Child and Adolescent Psychiatry*, 37, 412–9

Frueh, B.C., Grubaugh, A.L., Elhai, J.D. & Buckley, T.C (2007). U.S. department of veterans affairs disability policy for PTSD: Administrative trends and implications for treatment, rehabilitation and research. *American Journal of Public Health*, 97, 2143-2145

Gansle, K. A., & McMahon, C. M (1997). Component integrity of teacher intervention management behaviour using a student self-monitoring treatment: An experimental analysis. *Journal of Behavioral Education*, 7, 405–419

Garcia, A.M., Saptya, J.J., Moore, P.S., Freeman, J.B., Franklin, M.E., March, J.S. & Foa, E.B (2010). Predictors and moderators of treatment outcome in the pediatric obsessive compulsive treatment study (POTS I). *Journal of the American Academy of Child and Adolescent Psychiatry*, 49(10), 1024-1033

Garland, D (2001). *The Culture of Control: Crime and Social Order in Contemporary Society*. Chicago: University of Chicago Press

Geller, D.A., Hoog, S.L., Heiligenstein, J.H., Ricardi, R.K., Tamura, R., Kluszynski, S., Jacobson & J.G., Fluoxetine Pediatric OCD Study Team (2001). Fluoxetine treatment for obsessive-compulsive disorder in children and adolescents: A placebo-controlled clinical trial. *The Journal of the American Academy of Child and Adolescent Psychiatry*, 40, 773-9

Goodman R (1997) "The Strengths and Difficulties Questionnaire: A Research Note." *Journal of Child Psychology and Psychiatry*, 38, 581-586.

Gresham, F. M (1989). Assessment or treatment integrity in school consultation and prereferral interventions. *School Psychology Review*, *18,* 37–50

Gullone, E (2000). The development of normal fear: a century of research. *Clinical Psychology Review*, *20*, 429–451.

Hayward, C., Varady, S., Albano, A.M., Thieneman, M., Henderson, L. & Schatzberg, A.F (2000). Cognitive behavioural group therapy for female socially phobic adolescents: results of a pilot study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 39, 721-726

Himelhoch, S., Mohr, D., Maxfield, J., Clayton, S., Elyssa, W., Medoff, D. & Dixon, L (2011). Feasibility of telephone-based cognitive behavioural therapy targeting major depression among urban dwelling African-American people with co-occuring HIV. *Psychology, Health and Medicin*e, 16(2), 156-165

Hirshfeld-Becker, D.R., Masek, B., Henin, A., Blakely, L.R., Pollock-Wurman, R.A., McQuade, J., DePetrillo, L., Briesch, J., Ollendick, T.H (2010). Cognitive behavioral therapy for 4-7-year-old children with anxiety disorders: a randomized clinical trial. *Journal of Consulting and Clinical Psychology*, 78(4):498-510.

In-Albon, T. & Schneider, S (2007). Psychotherapy of childhood anxiety disorders: A meta-analysis. *Psychotherapy and Psychosomatics*, 76(1), 15-24

Kazdin, A. E (1986). Comparative outcome studies of psychotherapy: Methodological issues and strategies. *Journal of Consulting and Clinical Psychology*. 54, 95–105.

Kendall, P.C., Gosch, E., Furr, J.M. & Sood, E (2008). Flexibility within fidelity. *Journal of the American Academy of Child and Adolescent Psychiatry*, 47(9), 987-993

Kendall, P.C. & Beidas, R.S (2007). Smoothing the trail for dissemination of evidence-based practices for youth: Flexibility within fidelity. *Professional Psychology: Research and Practic*e, 38(1), 13-20

Kendall, P.C. & Hedtke, K (2006*). The Coping Cat Workbook*. 2nd ed. Ardmore, PA: Workbook Publishing

Kendall, P.C., Flannery-Schroeder, E., Panichelli- Mindel, S.M., Southam-Gerow, M., Henin, A. & Warman, M (1997). Therapy for youths with anxiety disorders: a second randomized clinical trial. *Journal of Consulting and Clinical Psychology,* 65(3): 366-380

Kingery, J. N., Roblek, J. L., Suveg, C., Grover, R. L., Sherrill, J. T. & Bergman, R. L (2006). They're not just "little adults": Developmental considerations for implementing cognitive-behavioural therapy with anxious youth. *Journal of Cognitive Psychotherapy*: An International Quarterly, 20(3), 263-273

Liber, J.M., McLeod, B.D., Van Widenfelt, B.M., Goedhart, A.W., van der Leeden, A.J.M., Utens, E.M.W.J. & Treffers, P.D.A (2010). Examining the relation between the therapeutic alliance, treatment adherence and outcome of cognitive behavioural therapy for children with anxiety disorders. *Behaviour Therapy*, 41, 172-186

Liber, J.M., van Widenfelt, B.M., van der Leeden, A.J.M., Goedhart, A.W., Utens, E.M.W.J. & Treffers, P.D.A (2010). The relation of severity and comorbidity to treatment outcome with cognitive behaviour therapy for childhood anxiety disorders. *Journal of Abnormal Child Psychology*, 38, 683-694

Liebowitz, M.R., Turner, S.M., Piacentini, J., Beidel, D.C., Clarvit, S.R., Davies, S.O., Graae, F., Jaffer, M., Lin, S.H., Sallee, F.R., Schmidt, A.B.

& Simpson, H.B (2002) Fluoxetine in children and adolescents with OCD: a placebo-controlled trial. *The Journal of the American Academy of Child and Adolescent Psychiatry*, 41, 1431-8

McFadyen-Ketchum, S.A., Bates, J.E., Dodge, K.A. & Petit, G.S. (1996). Patterns of change in early childhood aggressive-disruptive behaviour: gender differences in predictions from early coercive and affectionate mother-child interactions. *Child Development*, 67(5), 2417-2433

Ollendick, T.H., & King, N.J (1998). Empirically supported treatments for children with phobic and anxiety disorders: current status. *Journal of Clinical Child Psychology*, 27(2), 156-167

Ollendick, T.H., & King, N.J (2000). Empirically supported treatments for children and adolescents. In P.C. Kendall (Ed.), *Child and adolescent therapy: Cognitive behavioural procedures* (2nd edn; pp. 386–425). New York: Guilford Publications.

National Institute of Health and Clinical Guidelines (2005). *Obsessive Compulsive Disorder (OCD) and body dysmorphic disorder (BDD) CG351*. London: National Institute of Health and Clinical Excellence.

Noell, G. H., Gresham, F. M., & Gansle, K. A (2002). Does treatment integrity matter? A preliminary investigation of instructional implementation and mathematical performance. *Journal of Behavioral Education*, 11, 51–67.

Rapee, R.M., Lyneham, H.J., Schniering, C.A., Wuthrich, V., Abbott, M.J., Hudson, J.L. & Wigall, A (2006). *The Cool Kids Child and Adolescent Anxiety Program Therapist Manual.* Sydney: Centre for Emotional Health, Macquarie University. http://www.psy.mq.edu.au/CEH/index.html

Paivio, S. C., Holowaty, K. A. M., & Hall, I (2004). The influence of therapist adherence and competence on client reprocessing of child abuse

memories. *Psychotherapy: Theory, Research, Practice, Training, 41*, 56–68.

Perepletchikova, F., Treat, T. A. & Kazdin, A. E (2007). Treatment integrity in psychotherapy research: Analysis of the studies and examination of the associated factors. *Journal of Consulting and Clinical Psychology*, 75(6), 829-841

Perepletchikova, F., & Kazdin, A. E (2005). Treatment integrity and therapeutic change: Issues and research recommendations. *Clinical Psychology: Science and Practice, 12*, 365–383.

Peterson, C.A. & McConnell, S.R.(1993). Factors affecting the impact of social skills interventions in early childhood special education. *Topics in Early Childhood Special Education,* 13, 38–56.

Piacentini, J., Bergman, R.L., Keller, M. & McCracken J (2003). Functional impairment in children with obsessive-compulsive disorder. *Journal of Child and Adolescent Psychopharmcology*, 13(1), 61-69

Pediatric OCD Treatment Study (POTS) Team (2004). Cognitive-behaviour therapy, sertraline, and their combination for children and adolescents with obsessive compulsive disorder: the Pediatric OCD Treatment Study (POTS) randomized controlled trial. *The Journal of the American Medical Association*, 27; 292(16): 1969-1976.

Peterson, L., Homer, A.L. & Wonderlich, S.A (1982). The integrity of independent variable in behaviour analysis. *Journal of Applied Behavioural Analysis*, 15(4), 477-492

Quay, H. C (1977). The three faces of evaluation. *Criminal Justice and Behavior, 4*, 341–354.

Rasmussen, S.A., & Eisen, J.L (1992). The epidemiology and differential diagnosis of obsessive compulsive disorder. *The Journal of Clinical Psychiatry*, 53(4), 3-9

Riggs, K.J., & Peterson, D.M (2000). Counterfactual thinking in pre-school children: mental state and causal inferences. In P. Mitchell & K. Riggs (Eds.), *Children's reasoning and the mind*. Hove, UK: Psychology Press.

Riddle M.A., Scahill, L., King, R.A. , Hardin, M.T., Anderson, G,M., Ort, S.I., Smith, J.C., Leckman, J.F. & Cohen, D.J (1992) Double-blind crossover trial of fluoxetine and placebo in children with obsessive-compulsive disorder. *The Journal of the American Academy of Child and Adolescent Psychiatry*, 31, 1062-9

Scahill, L., Riddle, M.A., McSwiggin-Hardin, M., Ort, S.I., King, R.A., Goodman, W.K., Cicchetti, D. & Leckman, J.F (1997). Children's Yale-Brown obsessive compulsive scale: Reliability and validity. *Journal of the American Academy of Child and Adolescent Psychiatry*, 36, 844-852

Schoenwald, S.K., Halliday-Boykins, C. & Henggeler, S.W (2003). Client-level predictors of adherence to MST in community service settings. *Family Process*, 42, 345-359

Shadish, W. R., & Sweeney, R. B (1991). Mediators and moderators in meta-analysis: There's a reason we don't let dodo birds tell us which psychotherapies should have prizes. *Journal of Consulting and Clinical Psychology*, 59, 883–893.

Shaffer, D., Gould, M.S., Brasic, J., Ambrosini, P., Fisher, P., Bird, H. & Aluwahlia, S (1983). A children's global assessment scale. *Archives of General Psychiatry*, 40(11), 1228-1231

Shafran, R., Frampton, I., Heyman, I., Reynolds, M., Teachman, B. & Rachman, S (2003). The preliminary development of a new self-report measure for OCD in young people. *Journal of Adolescence*, 26, 137–142

Silverman, W.H., (1996). Cookbooks, manuals, and the paint-by-numbers: Psychotherapy in the 90's. *Psychotherapy*, 33, 207-215

Smith, E.W.L (1995). A passionate, rational response to the "manualization" of psychotherapy. *Psychological Bulletin*, 33, 36-40

Southam-Gerow, M.A., Kendall, P.C., Weersing, V.R (2001). Examining outcomes variability: Correlates of treatment response in a child and adolescent anxiety clinic. *Journal of Clinical Child Psychology*, 30(3), 422-436

Taylor, S., Thordarson, D.S., Spring, T., Yeh, A.H., Corcoran, K.M.,Eugster, K. & Tisshaw, C (2003). Telephone-administered cognitive behaviour therapy for obsessive-compulsive disorder. *Cognitive Behaviour Therapy*, 32(1), 13-25

Thienemann, M. Martin, J., Cregger, B., Thompson, H.B. & Dyer-Friedman, J (2001). Manual-driven group cognitive-behavioural therapy for adolescents with obsessive-compulsive disorder: A pilot study. *The American Academy of Child and Adolescent Psychiatry*, 40(11), 1254-1260

Thomsen, P.R. & Mikkelsen, H.U (1995) Course of obsessive-compulsive disorder in children and adolescents: A Prospective follow-up study of 23 Danish cases. *Journal of the American Academy Child Adolescent Psychiatry*, 34, 1432–1440

VandenBos, G.R. & Pino, C.D (1980). Research on the outcome of psychotherapy. In G.R. VandenBos (Ed.), *Psychotherapy: Practice, research, policy*. Beverly Hills, Calidornia: Sage

Wade, W., Treat, T. & Stuart, G (1998). Transporting an empirically supported treatment for panic disorder to a service clinical setting: a benchmarking strategy. *Journal of Consulting and Clinical Psychology*, 66, 231-239

Waltz, J., Addis, M. E., Koerner, K., & Jacobson, N. S (1993). Testing the integrity of a psychotherapy protocol: Assessment of adherence and competence. *Journal of Consulting and Clinical Psychology, 61, 620–630.*

Williams, T.I., Salkovskis, P.M., Forrester, L., Turner, S., White, H. & Allsopp, M.A (2010). A randomised controlled trial of cognitive behavioural treatment for obsessive compulsive disorder in children and adolescents. *European Child Adolescent Psychiatry*, 19, 449-456

Wolpert, M., Fuggle, P., Cottrell, D., Fonagy, P., Phillips, J., Pilling, S, Stein, S.T. & Target, M (2006) Drawing on the Evidence: Advice for mental health professionals working with children and adolescents (2nd Edition). The British Psychological Society.: London.

York, A. & Lamb, C (2004). Building and Sustaining Specialist CAMHS: *A discussion paper on workforce, capacity and functions of tiers 2, 3 and 4 Child and Adolescent Mental Health Service*s. Royal College of Psychiatrists: London

Appendix 1

Overview of Treatment

A maximum of 14 sessions to be completed within 8-17 weeks.
▪ Administer outcome measures at: assessment; end of treatment; 3 month, 6 month & 12 month F/U.

Treatment Start date: 17 wk MUST END date

Session 1: Learning about OCD
1. Establish rapport e.g. child's likes/dislikes ☐
2. Define & normalise obsessions & compulsion ☐
3. Discuss causes of OCD ☐
4. Externalise OCD (optional) ☐
5. Understanding anxiety (what is anxiety; fight or flight; anxiety rating scale; habituation) ☐
6. Set homework ☐
7. Parent Check in ☐

8. Session 2: Learning to fight back
Review session 1 and homework ☐
Understanding anxiety in OCD ☐
Generate an OCD list ☐
Begin an OCD symptom hierarchy ☐
Overview of CBT & E/RP (including vicious circle) ☐
Set homework ☐
Parent Check in ☐

9. Session 3: Learning to fight back
Review session 2 and homework ☐
In vivo E/RP task ☐
Helpful thoughts ☐
Set homework (E/RP task) ☐
Parent Check in ☐

Session 4: Fighting back using E/RP
In vivo E/RP task: rate anxiety over time ☐
Set up E/RP task for homework ☐
Parent Check in ☐

Session 5: Fighting back using E/RP
In vivo E/RP task: rate anxiety over time ☐
Set up E/RP task for homework ☐
Parent Check in ☐

Session 6: Fighting back using E/RP
In vivo E/RP task: rate anxiety over time
Set up E/RP task for homework
Parent Check in

1. Actual end date:

Session 8: Fighting back using E/RP
In vivo E/RP task: rate anxiety over time ☐
Set up E/RP task for homework ☐
Parent Check in ☐

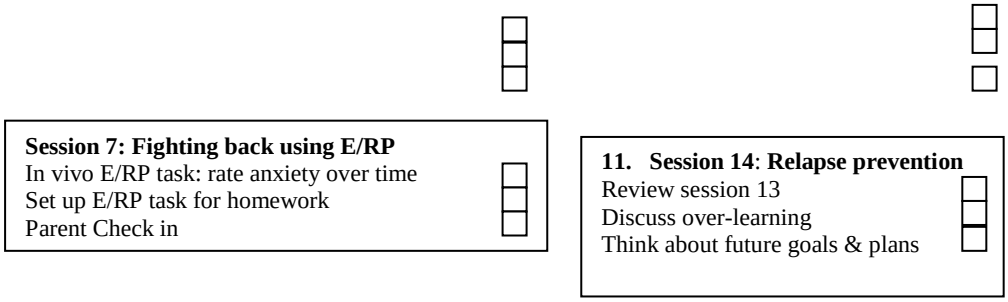
Session 9: Fighting back using E/RP
In vivo E/RP task: rate anxiety over time ☐
Set up E/RP task for homework ☐
Parent Check in ☐

Session 10: Fighting back using E/RP
In vivo E/RP task: rate anxiety over time ☐
Set up E/RP task for homework ☐
Parent Check in ☐

Session 11: Fighting back using E/RP
In vivo E/RP task: rate anxiety over time ☐
Set up E/RP task for homework ☐
Parent Check in ☐

Session 12: Fighting back using E/RP
In vivo E/RP task: rate anxiety over time ☐
Set up E/RP task for homework ☐
Parent Check in ☐

10. Session 13: Relapse prevention
Think about future stressors
Discuss what to do if OCD comes back
Parent Check in


Session 7: Fighting back using E/RP
In vivo E/RP task: rate anxiety over time
Set up E/RP task for homework
Parent Check in
11. Session 14: **Relapse prevention**
Review session 13
Discuss over-learning
Think about future goals & plans